

# **Integrated Preventive Maintenance Checklist for Biomedical Equipment**

**Diploma in Biomedical Equipment Engineering (DBEE)**  
(Affiliated to CTEVT)



**Government of Nepal  
Ministry of Health & Population  
National Health Training Centre  
Teku, Kathmandu  
2025**



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## Disclaimer

This Integrated Preventive Maintenance Checklist has been developed by National Health Training Center (NHTC) as an official reference document to support the preventive maintenance activities of biomedical equipment across healthcare institutions. The content of this document has been developed through the collective expertise and contributions of Biomedical Engineers, Biomedical Technicians, Lab Technologist, academic professionals, and institutional reviewers, with the aim of promoting uniformity, safety, and efficiency in biomedical equipment management.

While every effort has been made to ensure the technical accuracy and completeness of the information presented, the NHTC, authors, and associated institutions **do not assume any legal responsibility or liability** for errors, omissions, or outcomes resulting from the application of the procedures described in this publication.

Users of this manual are strongly advised to:

- Follow the **manufacturer's recommendations**, safety guidelines, and institutional policies when performing maintenance activities.
- Ensure that all **testing devices, tools, and instruments** used are properly calibrated and validated.
- Record and maintain documentation of the outcomes in compliance with institutional and regulatory requirements.

This document is intended as a **guidance and educational resource**. It does not replace official service manuals or technical documentation provided by equipment manufacturers. The NHTC reserves the right to update or revise this publication as required to reflect technological developments, updated standards, or policy changes.

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National Health Training Centre, Teku



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## **PREFACE**

National Health Training Centre has been strengthening healthcare services through effective utilization of medical resources including medical equipment. In this process preventive maintenance of biomedical equipment is the critical element which ensures safety, reliability and continuity of healthcare services.

It is a great pleasure to introduce this Integrated Preventive Maintenance Checklist document developed by the National Health Training Centre (NHTC) in collaboration with Nick Simons Institute. This checklist book has been designed to serve as a practical tool for DBEE students to establish a system of preventive maintenance in their workplace. It provides standard procedures and guidance to carry out regular inspection, servicing, and upkeep of medical devices in line with national and international practices.

The development of this valuable resource reflects our continued commitment to strengthening the capacity of BMETs. By adopting systematic preventive maintenance tools in our curriculum, we aim to equip BMETs with a culture of accountability and professionalism in biomedical services.

I sincerely acknowledge the contributions of experts, institutions, and stakeholders who supported the preparation of this document. I hope that this checklist will be a valuable reference for students, practitioners, and all those engaged in the management of medical equipment. On behalf of NHTC, I encourage all users to apply this tool effectively and consistently, thereby contributing to safer, more reliable, and higher-quality healthcare delivery in Nepal.

.....  
Yeshoda Aryal  
Director  
Nov. 2025





Ref 428

Government of Nepal  
Ministry of Health & Population

## DEPARTMENT OF HEALTH SERVICES

Management Division

Pachali, Teku, Kathmandu, Nepal



### Foreword

5361768

Date: Nov 6, 2025

Medical Equipment is essential to ensure the safe, effective and uninterrupted healthcare services. Management Division always ensures availability of medical equipment across all levels of health facilities. It is also equally important that every piece of equipment procured and distributed is equally maintained and utilized.

Preventive maintenance is crucial to minimizing equipment downtime that extends equipment lifespan. Management Division highly appreciates the development of this checklist which serves as a practical tool to guide DBEE students, technicians, engineers and health institutions in maintaining their equipment effectively.

The Preventive Maintenance Checklist is an approach to maintaining equipment routinely, adhering to national and international protocols. This also promotes a culture of systematic and regular preventive maintenance. Management Division supports such initiatives that contribute to quality healthcare.

I extend my appreciation to the National Health Training Centre (NHTC) and all the technical experts involved in preparing this document. I believe this document will serve as a valuable resource in planning and maintaining activities.

Dr. Pawan Jung Rayamajhi  
Director  
Management Division  
Department of Health Services (DoHS)







# Council for Technical Education and Vocational Training



## Message

The Council for Technical Education and Vocational Training (CTEVT) is pleased to acknowledge the development of **Integrated Preventive Maintenance (PM) Checklist** for the Diploma in Biomedical Equipment Engineering program. This document will serve as a practical tool to support the effective implementation of the prescribed learning outcomes.

CTEVT highly appreciates the National Health Training Centre (NHTC) and the Nick Simons Institute (NSI) for their leadership in this initiative and extends sincere thanks to all experts and contributors for their valuable efforts in preparing this important resource.

I believe this publication will serve as a milestone in producing competent graduates capable of managing biomedical equipment. I wish for the successful implementation of this document.

Binod Badal

Director

Curriculum Development and Equivalence Division, CTEVT





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### Acknowledgement

Preventive Maintenance is an important step towards strengthening the functionality, safety and sustainability of medical equipment. The development of this material “**Integrated Preventive Maintenance Checklist for Biomedical Equipment**” aims to support both teaching and learning process as a standard tool which promotes maintenance practices.

The checklist encompasses qualitative and quantitative analysis, including visual inspection, functionality of the equipment, leakage current to ground resistance. The content has been developed based on national and international standards. Each checklist is designed in concise and easily understandable manner.

The Training Material Development Section extends its sincere appreciation to all experts and technical officers who contributed their knowledge and experience in preparing and reviewing this checklist. Special thanks to the Management Division for its continuous guidance and collaboration in the process. I would like to equally acknowledge the support of Nick Simons Institute for their support in developing this package. I highly appreciate the contribution of the hospitals providing internships to our DBEE students. Similarly, I would also like to thank DBEE students for implementing the piloted version as a part of their internship and heartfelt thanks to the allocated supervisor of the respective hospitals for making it a success. Your feedback was highly appreciated.

I hope this checklist will serve as a valuable tool for students, learners, technical officers and health institutions in periodically maintaining medical equipment effectively and safely.

.....  
Chetan Nidhi Wagle  
Section Chief  
Training Material Development Section

November, 2025



## Abbreviations

<b>AAMI</b>	Association for the Advancement of Medical Instrumentation
<b>AAMI</b>	Association for the Advancement of Medical Instrumentation
<b>AB Scan</b>	Amplitude Scan
<b>ABG Analyzer</b>	Arterial Blood Gas Analyzer
<b>AC</b>	Assist/Control
<b>ACT</b>	Automated Coagulation Timer
<b>AED</b>	Automated External Defibrillator
<b>APL valve</b>	Adjustable Pressure Limiting valve
<b>BERA</b>	Brainstem Evoked Response Audiometry
<b>BiPAP</b>	Bilevel Positive Airway Pressure
<b>BME</b>	Biomedical Engineer
<b>BMET</b>	Biomedical Equipment Technician
<b>BP</b>	Blood Pressure
<b>CD4</b>	Cluster of Differentiation
<b>CLIA</b>	Chemiluminescent Immunoassay
<b>CPAP</b>	Continuous Positive Airway Pressure
<b>CPM</b>	Continuous Passive Motion
<b>CR</b>	Computed Radiography
<b>CSSD</b>	Central Sterile Supply Department
<b>CT</b>	Computed Tomography
<b>CTEVT</b>	Council for Technical Education and Vocational Training
<b>CTG</b>	Cardiotocography
<b>DBEE</b>	Diploma in Biomedical Equipment Engineering
<b>DR</b>	Digital Radiography
<b>DoHS</b>	Department of Health Services
<b>ECG</b>	Electrocardiograph
<b>ECMO</b>	Extracorporeal Membrane Oxygenation
<b>ECRI</b>	Emergency Care Research Institute
<b>EEG</b>	Electroencephalogram
<b>ELISA</b>	Enzyme-Linked Immunosorbent Assay
<b>EMG</b>	Electromyogram
<b>EMR</b>	Electronic Medical Record
<b>ENT</b>	Ear, Nose and Throat
<b>EPAP</b>	Expiratory Positive Airway Pressure
<b>ESU</b>	Electro Surgical Unit
<b>ETO</b>	Ethylene Oxide
<b>FEV<sub>1</sub></b>	Forced Expiratory Volume in 1 second
<b>FHR</b>	Foetal Heart Rate
<b>FiO<sub>2</sub></b>	Fraction of Inspired Oxygen
<b>FVC</b>	Forced Vital Capacity
<b>HFNC</b>	High Flow Nasal Cannula
<b>HT</b>	High Tension

<b>IBP</b>	Invasive Blood Pressure
<b>ICU</b>	Intensive Care Unit
<b>IEC</b>	International Electrotechnical Commission
<b>IFT</b>	Interferential Therapy
<b>IOP</b>	Intraocular Pressure
<b>IOPA</b>	Intra-Oral Periapical
<b>IPAP</b>	Inspiratory Positive Airway Pressure
<b>LCD</b>	Liquid Crystal Display
<b>LED</b>	Light Emitting Diode
<b>MGPS</b>	Medical Gas Pipeline System
<b>NHTC</b>	National Health Training Centre
<b>NIBP</b>	Non-Invasive Blood Pressure
<b>NRV</b>	Non-Return Valve
<b>NSI</b>	Nick Simons Institute
<b>OPG</b>	Orthopantomogram
<b>OT</b>	Operation Theatre
<b>PCA</b>	Patient-Controlled Analgesia
<b>PCR</b>	Polymerase Chain Reaction
<b>PD</b>	Pupillary Distance
<b>PDP</b>	Pressure Dew Point
<b>PDU</b>	Power Distribution Unit
<b>PEEP valve</b>	Positive End-Expiratory Pressure valve
<b>PFT</b>	Pulmonary Function Test
<b>PM</b>	Preventive Maintenance
<b>PPM</b>	Planned Preventive Maintenance
<b>PSV</b>	Pressure Support Ventilation
<b>QC</b>	Quality Control
<b>REM</b>	Return Electrode Monitoring
<b>RO</b>	Reverse Osmosis
<b>RVG</b>	Radiovisiography
<b>SIMV</b>	Synchronized Intermittent Mandatory Ventilation
<b>SpO<sub>2</sub></b>	Peripheral Capillary Oxygen Saturation
<b>TDS</b>	Total Dissolved Solids
<b>TENS</b>	Transcutaneous Electrical Nerve Stimulation
<b>TOCO</b>	Tocodynamometer
<b>UF</b>	Ultrafiltration
<b>USB</b>	Universal Serial Bus
<b>UV</b>	Ultraviolet
<b>VDRL</b>	Venereal Disease Research Laboratory
<b>WHO</b>	World Health Organization

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# Table of Content

<b>Preface .....</b>	<b>i</b>
<b>Foreword .....</b>	<b>ii</b>
<b>Message .....</b>	<b>iii</b>
<b>Acknowledgement .....</b>	<b>v</b>
<b>Abbreviations .....</b>	<b>ix</b>
<b>List of Contributors .....</b>	<b>vii</b>
<b>Acknowledgement .....</b>	<b>viii</b>
<b>Content experts .....</b>	<b>viii</b>
<b>Instructional Design .....</b>	<b>viii</b>
<b>Introduction .....</b>	<b>1</b>
Background .....	1
Checklist Description .....	1
Objectives .....	1
Application .....	2
How to Use This Checklist .....	2
<b>1. General Equipment .....</b>	<b>7</b>
1.1 BP Machine .....	8
1.2 CPAP Machine .....	10
1.3 Defibrillator/Automated External Defibrillator (AED) .....	12
1.4 Electrocardiograph Multi channel (ECG) .....	14
1.5 Examination Lamp/Light .....	16
1.6 Mortuary Refrigerator .....	18
1.7 Nebulizer .....	20
1.8 Pulmonary Function Test (PFT) Machine .....	22
1.9 Stethoscope .....	24
1.10 Suction Apparatus .....	26
<b>2. ICU Equipment .....</b>	<b>30</b>
2.1 ACT Machine (Automated Coagulation Timer) .....	31
2.2 Arterial Blood Gas Analyzer (ABG) .....	33
2.3 BiPAP Machine .....	35

2.4 Bronchoscope (flexible or rigid) .....	37
2.5 Cardiac Monitor .....	39
2.6 ECMO (Extracorporeal Membrane Oxygenation) Machine .....	41
2.7 Handheld Pulse Oximeter .....	43
2.8 High Flow Nasal Cannula (HFNC).....	45
2.9 Holter Machine .....	47
2.10 ICU Bed, Electric.....	49
2.11 Infusion Pump.....	51
2.12 Patient Monitor .....	53
2.13 Syringe Pump.....	55
2.14 Ventilator .....	57
<b>3. Operation Theatre Equipment .....</b>	<b>59</b>
3.1 Anesthesia Machine .....	60
3.2 Arthroscopy tower .....	62
3.3 Blood and Fluid Warmer.....	64
3.4 Electro Surgical Unit (ESU) .....	66
3.5 Laparoscopy Tower .....	68
3.6 Lithotripsy Machine.....	70
3.7 Operating Table (OT Table) .....	72
3.8 OT Light (Ceiling) .....	74
3.9 OT Light (Portable).....	76
<b>4. Oxygen Generators and Storage Devices.....</b>	<b>78</b>
4.1 Oxygen Concentrator .....	79
4.2 Oxygen Plant and MGPS .....	81
<b>5. CSSD Equipment .....</b>	<b>85</b>
5.1 Autoclave .....	86
5.2 ETO Sterilizer (ethylene oxide) .....	88
5.3 Flash Autoclave .....	90
5.4 Microwave/ Frictional Heat .....	92
5.5 Plasma Sterilizer .....	94
<b>6. Maternity Equipment .....</b>	<b>96</b>
6.1 Cardiotocography (CTG) Machine .....	97
6.2 Fetal Doppler .....	99

6.3 Fetal Monitor .....	101
6.4 Infant Incubator.....	103
6.5 Phototherapy Unit (Infant) .....	105
6.6 Radiant Warmer .....	107
<b>7. Hemodialysis Equipment.....</b>	<b>109</b>
7.1 Dialyzer Reprocessing Machine .....	110
7.2 Hemodialysis Machine.....	112
7.3 Water Treatment System.....	114
<b>8. Neurology Equipment.....</b>	<b>116</b>
8.1 EEG.....	117
8.2 EMG.....	119
8.3 Intraoperative Neuro Monitoring System .....	121
8.4 Neuro Bone Drill.....	123
8.5 Surgical Neuro Microscope .....	125
<b>9. Laboratory Equipment.....</b>	<b>130</b>
9.1 Automatic Slide Stainer .....	132
9.2 Bilirubinometer .....	134
9.3 Binocular Microscope.....	136
9.4 Biochemistry Analyzer (Fully Automated).....	138
9.5 Biochemistry Analyzer (Semi-Automated).....	140
9.6 Biosafety Cabinet.....	142
9.7 CD4 counter .....	144
9.8 Centrifuge Machine .....	146
9.9 Coagulation Analyzer .....	148
9.10 Colorimeter .....	150
9.11 Cyto Centrifuge Machine.....	152
9.12 Deep Freezer .....	154
9.13 Dry Bath Incubator .....	156
9.14 Electrolyte Analyzer .....	158
9.15 Electrophoresis Machine.....	160
9.16 Extraction Machine.....	162
9.17 Flow Cytometer .....	164
9.18 GeneXpert.....	166

9.19 Hematology Analyzer .....	168
9.20 High Performance Liquid Chromatography (HPLC Analyzer) .....	170
9.21 Hot Air Oven.....	172
9.22 Immuno Assay Analyzer (CLIA).....	174
9.23 Immuno Assay Analyzer (ELISA-Reader) .....	176
9.24 Immuno Assay Analyzer (ELISA-Washer) .....	178
9.25 Immuno Assay Analyzer (FIA).....	180
9.26 Immuno Assay Analyzer (Fully Automated - ELISA) .....	182
9.27 Incubator .....	184
9.28 Microtome.....	186
9.29 PCR Cabinet.....	188
9.30 PCR Machine .....	190
9.31 Protein Analyzer/Nephelometry .....	192
9.32 Refrigerated Centrifuge Machine.....	194
9.33 Refrigerator .....	196
9.34 Shaker (Mixer).....	198
9.35 Tissue Processor.....	200
9.36 Urine Analyzer (Semi Automated) .....	202
9.37 Water Bath .....	204
<b>10. Dental Equipment .....</b>	<b>208</b>
10.1 Dental Chair .....	209
10.2 Dental Unit, Complete .....	211
10.3 Dental X-Ray Unit .....	213
10.4 OPG Machine.....	215
<b>11. ENT Equipment .....</b>	<b>217</b>
11.1 Audiometer .....	218
11.2 BERA Machine.....	220
11.3 ENT Microscope.....	222
11.4 ENT Treatment Unit .....	224
<b>12. Ophthalmic Equipment .....</b>	<b>226</b>
12.1 AB Scan Machine .....	227
12.2 Auto Ref-Keratometer .....	229
12.3 Direct Ophthalmoscope .....	231

12.4 Green Laser .....	233
12.5 Indirect Ophthalmoscope .....	235
12.6 Lensometer.....	237
12.7 Non-Contact Tonometer .....	239
12.8 Slit Lamp.....	241
<b>13. Imaging Equipment .....</b>	<b>245</b>
13.1 C-Arm Machine .....	246
13.2 CR Printer .....	248
13.3 CT Scan.....	250
13.4 DR System (Flat Panel Detector).....	252
13.5 ECHO/ Ultrasound Machine.....	254
13.6 Mammography System .....	256
13.7 Portable X-ray Machine .....	258
13.8 Stationary X-ray Machine.....	260
13.9 X-ray Cassette Reader.....	262
<b>14. Physiotherapy Equipment.....</b>	<b>264</b>
14.1 Continuous Passive Motion (CPM) .....	265
14.2 Diathermy .....	267
14.3 Interferential therapy Machine (IFT) .....	269
14.4 Muscle Stimulator.....	271
14.5 Traction Unit.....	273
14.6 Transcutaneous Electrical Nerve Stimulation (TENS) .....	275
14.7 Treadmill Test Machine .....	277
14.8 Wax Bath .....	279
<b>Criteria of Internship Institution.....</b>	<b>281</b>
<b>Annex I.....</b>	<b>282</b>
<b>Annex II .....</b>	<b>283</b>
<b>Annex III.....</b>	<b>287</b>
<b>Annex IV .....</b>	<b>288</b>
<b>Annex V .....</b>	<b>295</b>
<b>References.....</b>	<b>296</b>



# Introduction

## Background

Medical equipment includes different instruments, equipment, machinery, or apparatus used for medical and para-medical applications requiring calibration, maintenance, repair, user training, and decommissioning. They play a vital role in modern healthcare by enabling accurate diagnosis, effective treatment, and patient care. However, the performance and safety of these devices depend heavily on routine maintenance and inspection. This makes Planned Preventive Maintenance (PPM) an essential skill for biomedical engineering professionals. To address this need, a structured set of PPM checklists has been developed specifically for Diploma in Biomedical Equipment Engineering students, covering 14 departments with PPM procedures for 124 biomedical equipment and including 6 testing and calibration forms.

This educational resource is designed to bridge the gap between classroom learning and real-world healthcare technology management. Each checklist covers practical aspects of routine maintenance and inspection for a wide range of medical devices, such as diagnostic machines, life-support systems, surgical tools, and laboratory analyzers. These devices are commonly found in hospital settings and require regular upkeep to ensure safe and efficient operation.

## Checklist Description

Each checklist is designed to guide students through standard PPM tasks associated with specific medical devices. The format typically includes:

- **Visual Inspection** items (physical condition, labeling, connection integrity)
- **Functional Testing** steps (power-up, alarms, indicators)
- **Quantitative testing**
- **Test Equipment Required**
- **Remarks/Corrective Actions**

These checklists are based on international standards IEC 60601(Electrical safety), WHO Guidelines, AAMI/ECRI, ACRE (India), and manufacturer recommendations, adapted to the capabilities of educational institutions.

## Objectives

- Standardize the approach to PPM in academic and internship settings.
- Help students identify critical components and parameters for various devices.
- Encourage the use of correct test equipment and documentation methods.
- Cultivate preventive maintenance habits and technical troubleshooting abilities.

- Support institutional readiness for accreditation and compliance reviews.

## Application

These checklists can be used in:

- Practical lab sessions and demonstrations.
- Internship and hospital training programs.
- Technical skill assessments and internal evaluations.
- On-the-job training modules post-graduation.

By integrating this section into the training workflow, institutions can ensure that students are academically qualified and technically prepared to support healthcare systems through safe, reliable, and proactive medical equipment maintenance.

## How to Use This Checklist

This checklist serves as a standardized tool to assist biomedical engineers, technicians, and healthcare professionals in performing **preventive maintenance (PM)** on various categories of medical equipment.

### I. **Structure:**

The document is divided into **six modules**, each representing a group of related medical devices:

**Module 1:** General Equipment

**Module 2:** ICU, OT, and Oxygen Equipment

**Module 3:** CSSD, Delivery, Hemodialysis, and Neurology Equipment

**Module 4:** Laboratory Equipment

**Module 5:** Dental, ENT, and Ophthalmic Equipment

**Module 6:** Imaging and Physiotherapy Equipment

### II. **Checklist Components:**

Each equipment checklist includes the following sections:

- **Identification Details:** Hospital name, equipment model, manufacturer, serial/inventory number, and PM frequency.



- **Qualitative Tests:**

- **Visual Inspection** – to check physical integrity, labeling, and general condition.
- **Functional Testing** – to verify proper operation of key functions.
- **Cleaning and Disinfection** – to ensure equipment hygiene and user safety.

Each parameter should be marked as **OK/Not OK (✓/X)** and accompanied by **action needed/action taken** as applicable.

- **Quantitative Tests:**

Where applicable, reference values, readings, and remarks should be recorded to assess equipment performance against standards.

- **Spare Parts Section:**

Use this section to document **replaced or required spare parts**, including **description, quantity, and remarks**.

- **Status and Remarks:**

Indicate the overall status as **“Passed”** or **“Service Required”** based on the PM findings.

- **Performed by / Approved by:**

Signatures of the technician performing the PM and the supervisor approving the report must be included.

III. **Frequency and Documentation:**

PM frequency should follow the schedule recommended by the manufacturer or institutional policy. Each complete checklist should be properly filed and made available for periodic review and audit.

IV. **Annexes:**

Supporting materials such as lists of general tools, testing devices, supervision and feedback forms, and internship evaluation criteria are provided at the end of the document to guide practical implementation and reporting.



# **Module 1: General Equipment**

## List of Equipment

<b>1. General Equipment.....</b>	<b>7</b>
1.1 BP Machine .....	8
1.2 CPAP Machine .....	10
1.3 Defibrillator/Automated External Defibrillator (AED).....	12
1.4 Electrocardiograph Multi channel (ECG) .....	14
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## **1. General Equipment**

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1.9 Stethoscope.....	24
1.10 Suction Apparatus .....	26

## 1.1 BP Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Spare cuff
Y- connector	Tubing

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Chassis/ Housing/Casing		
Cuff intact		
Tubing flexible and crack free		
Inflation bulb intact		
Display and battery (if applicable)		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF (if applicable)		
Cuff Inflate and deflate properly		
Systolic and diastolic value		
Pulse reading (if applicable)		
Needle of manometer at zero		
Battery charging (if applicable)		
Reading deviation		
CLEANING and DISINFECTION		
Wipe external surface		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 μA	
Leakage current patient leads acc. to IEC 60601	<100μA	

**SPARE PARTS**

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## 1.2 CPAP Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Power cables, connectors, and wires for wear/damage		
Humidifier chamber not cracked or leaking		
Air inlet/outlet ports free of blockage		
Pest Infestation		
Strain Relief		
Controls/Switches		
FUNCTIONAL TESTING		
Power ON/OFF		
Airflow starts and stops as expected		
Pressure ramp function operates correctly		
Alarm system and visual/audible indicators functional		
Display settings (pressure, ramp time, etc.) adjustable and accurate		
Air filter clean or replaced		
Humidifier heats properly (if included)		
Additional (if any)		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		
Display screen		
CLEANING and DISINFECTION		
External surfaces disinfected		



Reusable parts disinfected properly		
Disposables replaced per schedule		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

### 1.3 Defibrillator/Automated External Defibrillator (AED)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	
Defibrillator Analyzer	
ECG Simulator	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Power cables, connectors, and wires for wear/damage		
Labels, markings, and warning indicators visible		
Paddle condition (manual) or pad connectors (AED) good		
Electrode cables intact without fraying or cracks		
Controls/Switches		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Self-test/automatic test passes		
ECG display functional and accurate		
Energy selection and charging operational		
Charging time within manufacturer's limits		
Audible/visual prompts functioning correctly		
Synchronized cardioversion (manual defibrillators) tested		
Discharge test performed with test load		
Additional (if any)		
DISPLAY AND INTERFACE		

Touchscreens/ buttons		
Display screen		
<b>CLEANING and DISINFECTION</b>		
Device cleaned and disinfected		
Electrodes and paddles cleaned (manual defibrillators)		
No residue or fluid ingress in connectors or housing		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	
Output power test (Joule) (Lo, Mi, Hi)	± 10 %	
Sync time	< 20 msec	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 1.4 Electrocardiograph Multi channel (ECG)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	
ECG Simulator	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Paper tray and feed mechanism operational		
Patient cable and lead wires intact (no cracks or fraying)		
Electrodes and connectors clean and corrosion-free		
Power cable/adapter		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
ECG waveform displays clearly		
Printout function working properly		
Lead selection and signal switching accurate		
Noise-free signal with proper filtering		
Alarm/alert indicators functioning correctly		
1mV step Response		
Paper speed and grid alignment accurate		
Battery backup (if available) functional		
Right paper used		
Additional (if any)		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		

Screen calibration		
<b>CLEANING and DISINFECTION</b>		
Exterior cleaned with appropriate disinfectants		
Cables, clips, and reusable electrodes disinfected		
No residue or buildup in ports or connectors		
Storage area clean and contamination-free		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## 1.5 Examination Lamp/Light

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing		
Labels/Safety Sticker		
Battery/Charger		
Controls/Switches/Fuses		
Power cables, connectors, and wires for wear/damage		
Arm movement smooth and stays in position		
Base or mounting system stable		
Protective covers and heat shields intact		
Indicator lights (if any) working		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Light source intensity adjustable and functional		
No flickering, dimming, or color change		
Focus mechanism functional		
Bulb/LED is clean and free of black spots or burn marks		
Additional (if any)		
CLEANING and DISINFECTION		
All surfaces wiped down and disinfected		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 1.6 Mortuary Refrigerator

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Battery/Charger		
Controls/Switches		
Fuses		
Power cables, connectors, and lead wires for wear/damage		
Racks/trays smooth and undamaged		
Pest Infestation		
Strain Relief		
Door, Chamber/tray		
Door alignment/gasket, seal		
Locks/Brakes		
Wheels (if mobile)		
FUNCTIONAL TESTING		
Power ON/OFF		
Compressor operating smoothly		
Evaporator and condenser coils clean		
Refrigerant level checked (no leakage)		
Fans and motors functional		
Proper insulation around coils		
Temperature sensor/probe functioning		
Digital/analog temperature display accurate		



Additional (if any)		
<b>DISPLAY AND INTERFACE</b>		
Touchscreens/ buttons		
Display screen		
<b>CLEANING and DISINFECTION</b>		
No fluid leakage or odor		
Interior and trays disinfected		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 1.7 Nebulizer

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
	Air filter

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Visible damage (cracks, loose parts, wear)		
Labels/Safety Sticker		
Power cable, plugs, and connectors secure		
Air filter present and clean		
Tubing and nebulizer cup intact, not discolored or cracked		
Controls/Switches/Fuses		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Nebulization begins promptly when medication added		
No unusual noises or vibrations during operation		
Sufficient mist produced		
Backpressure test performed (if applicable)		
Additional (if any)		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		
Display screen		
CLEANING and DISINFECTION		
Exterior cleaned with disinfectant		
Tubing, mask/mouthpiece, and nebulizer chamber cleaned/disinfected		
Filter replaced or cleaned per schedule		

Storage area clean and dry		
----------------------------	--	--

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 1.8 Pulmonary Function Test (PFT) Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	
Calibration Syringe (3 liters Syringe calibration)	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Spirometer/mouthpiece holder secure		
Printer (if attached) operational		
Touchscreen/control buttons responsive		
Pest Infestation		
Strain Relief		
Controls/Switches/Fuses		
FUNCTIONAL TESTING		
Power ON/OFF		
Battery backup (if applicable) functioning		
Flow sensor/spirometer functioning accurately		
Volume calibration check with calibration syringe		
Flow linearity test performed		
Test curves (FVC, FEV1, etc.) recorded accurately		
Additional (if any)		
CLEANING and DISINFECTION		
Device disinfected		
Disposable items discarded after use		
Patient interface cleaned properly		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100µA	

#### SPARE PARTS

S.No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 1.9 Stethoscope

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Ball and diaphragm intact		
No leaks and cracks on tubing		
Earpieces intact		
Headset alignment		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Clear sound from chest piece		
No distortion		
Earpiece fit properly on ear		
No residue on chestpiece		
CLEANING and DISINFECTION		
Wipe external surface		
Clean earpiece and chestpiece		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	µA	

**SPARE PARTS**

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## 1.10 Suction Apparatus

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Power cable and plug in good condition		
Suction jars/canisters intact and not cracked		
Hoses, tubing, and connectors secure and undamaged		
Wheels/casters roll smoothly (if applicable)		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Suction starts promptly when activated		
Vacuum pressure builds up to required levels		
Adjustable pressure control functional		
Unusual noise or vibrations during operation		
Overflow protection working properly (if applicable)		
Airflow consistent and uninterrupted		
Filters (if present) clean and effective		
Additional (if any)		
DISPLAY AND INTERFACE		
Display/Switches / buttons		
CLEANING and DISINFECTION		
Canisters emptied and disinfected		



Filter and bacterial traps inspected and replaced if needed		
Tubing replaced or sterilized (as per protocol if any)		
Canisters emptied and disinfected		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## **Module 2: ICU, OT, and Oxygen Equipment**

## List of Equipment

<b><u>2. ICU Equipment</u></b> .....	<b>30</b>
2.1 ACT Machine (Automated Coagulation Timer) .....	31
2.2 Arterial Blood Gas Analyzer (ABG).....	33
2.3 BiPAP Machine.....	35
2.4 Bronchoscope (flexible or rigid) .....	37
2.5 Cardiac Monitor .....	39
2.6 ECMO (Extracorporeal Membrane Oxygenation) Machine .....	41
2.7 Handheld Pulse Oximeter .....	43
2.8 High Flow Nasal Cannula (HFNC).....	45
2.9 Holter Machine.....	47
2.10 ICU Bed, Electric .....	49
2.11 Infusion Pump .....	51
2.12 Patient Monitor.....	53
2.13 Syringe Pump .....	55
2.14 Ventilator.....	57
<b><u>3. Operation Theatre Equipment</u></b> .....	<b>59</b>
3.1 Anesthesia Machine .....	60
3.2 Arthroscopy tower.....	62
3.3 Blood and Fluid Warmer.....	64
3.4 Electro Surgical Unit (ESU).....	66
3.5 Laparoscopy Tower.....	68
3.6 Lithotripsy Machine .....	70
3.7 Operating Table (OT Table).....	72
3.8 OT Light (Ceiling) .....	74
3.9 OT Light (Portable).....	76
<b><u>4. Oxygen Generators and Storage Devices</u></b> .....	<b>78</b>
4.1 Oxygen Concentrator .....	79
4.2 Oxygen Plant and MGPS .....	81

## **2. ICU Equipment**

2.1 ACT Machine (Automated Coagulation Timer) .....	31
2.2 Arterial Blood Gas Analyzer (ABG).....	33
2.3 BiPAP Machine.....	35
2.4 Bronchoscope (flexible or rigid) .....	37
2.5 Cardiac Monitor .....	39
2.6 ECMO (Extracorporeal Membrane Oxygenation) Machine .....	41
2.7 Handheld Pulse Oximeter .....	43
2.8 High Flow Nasal Cannula (HFNC).....	45
2.9 Holter Machine.....	47
2.10 ICU Bed, Electric .....	49
2.11 Infusion Pump .....	51
2.12 Patient Monitor.....	53
2.13 Syringe Pump .....	55
2.14 Ventilator.....	57

## 2.1 ACT Machine (Automated Coagulation Timer)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Chassis/Housing		
Mount / Fasteners		
Casters/Brakes		
AC Plug/receptacles		
Line Cord		
Strain Reliefs		
Fuses		
Tubes /Hoses		
Fittings/Connectors		
Control /switches		
Labels/Safety Sticker		
Pest Infestation		
Indicators/Display		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Heating block temperature		
Sample insertion and detection sensor test		
Confirm cartridge lot		
Clotting time		
Temperature		
Battery status		
Charging indicator		

<b>CLEANING and DISINFECTION</b>		
Wipe external surface		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## 2.2 Arterial Blood Gas Analyzer (ABG)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Fuses		
Power cable, plugs, and connectors secure		
Mount/Fasteners		
Controls/Switches/Fuses		
Pest Infestation		
Strain Relief		
Indicators/Display		
FUNCTIONAL TESTING		
Power ON/OFF		
pH, pCO <sub>2</sub> , pO <sub>2</sub> sensors clean and responsive		
Calibration and response time within limits		
Sample aspiration system clean and functioning		
No leaks or clogs in sample pathway		
Automatic or manual calibration performed routinely		
Additional (if any)		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		
Display screen		
Printer (if any)		
CLEANING and DISINFECTION		

External and sample port cleaned		
Disinfection procedure followed post-exposure to blood		
Cleaned using manufacturer-recommended materials		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:



## 2.3 BiPAP Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	
Gas flow analyzer (with pressure gauge)	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Chassis/Housing		
Mount / Fasteners		
Casters/Brakes		
AC Plug/receptacles		
Line Cord		
Strain Reliefs		
Fuses		
Tubes /Hoses/ Circuit/Mask		
Fittings/Connectors		
Control /switches		
Air filter		
Labels/Safety Sticker		
Pest Infestation		
Indicators/Display		
FUNCTIONAL TESTING		
Power ON/OFF		
Self-test		
BiPAP mode (IPAP, EPAP delivery, etc.)		
Air pressure		
Operation of Humidifier		
Alarm (high pressure, low pressure, power failure)		

Pressure output		
Flow sensor accuracy		
Leak compensation		
Circuit/tubing, mask leak check		
<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Disconnect reusable parts and disinfect		
Clean humidifier (if applicable)		
Replace / reuse filter, if needed		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	µA	
Leakage current patient leads acc. to IEC 60601	µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 2.4 Bronchoscope (flexible or rigid)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	
Leak test kit	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Pest Infestation		
Lights/ indicator		
Angulation knob		
Suction Bottles		
Condition of lens		
Insertion tube		
Light guide		
Fuse		
Fittings/Connectors		
Strain Relief		
FUNCTIONAL TESTING		
Power ON, video processor and light source		
Suction functionality		
Insufflation function		
light source brightness		
Thermal system		
Leak test		
Verify image clarity/focusing		

<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Disinfection or sterilization		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## 2.5 Cardiac Monitor

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	
Simulator(ECG/SPO2/NIBP,..etc)	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Pest Infestation		
Electrodes/Patient Cable		
Printer Head		
Roller		
Paper		
Display/touch		
Fuse		
Fittings/Connectors		
Strain Relief		
FUNCTIONAL TESTING		
Power ON		
Paper feed		
Trace quality		
Printer Mechanism		
Audible and visual alarms		
Touch calibration/verify accuracy/check buttons		
ECG/SP02/NIBP, etc performance validation/verification		

Battery/ charger		
<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Disinfection probe and monitor surface		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	
ECG	±1 bpm	
SPO2	±2%	
NIBP	±5 mmHg	
Temperature	±0.2°C	
IBP/EtCO2		

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## 2.6 ECMO (Extracorporeal Membrane Oxygenation) Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	
Gas flow analyzer, Oxygen Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Chassis/Housing		
Mount / Fasteners		
Casters/Brakes		
AC Plug/receptacles		
Line Cord		
Strain Reliefs		
Fuses		
Tubes /Hoses		
Fittings/Connectors		
Control /switches		
Tubing, mask, connectors		
Air filter		
Labels/Safety Sticker		
Pest Infestation		
Indicators/Display		
FUNCTIONAL TESTING		
Power ON/OFF		
Self-test		
Pump Operation		
Arterial and venous pressure		
Flow sensor		
Gas blender		

Heater unit and safety cut off		
Extracorporeal circuit		
Air bubble detector		
<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Disconnect reusable parts and disinfect		
Replace / reuse filter, if needed		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	
Blood flow	±10% of set value	
Pressure Monitoring	Within ±5 mmHg	
Temperature (compared to reference thermometer)	±0.5°C	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:



## 2.7 Handheld Pulse Oximeter

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	
Spo2 Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Chassis/Housing		
Mount / Fasteners		
AC Plug/receptacles		
Line Cord		
Strain Reliefs		
Fuses		
Tubes /Hoses		
Fittings/Connectors		
Control /switches		
Probe		
Display screen		
Labels/Safety Sticker		
Pest Infestation		
Battery/Charger		
FUNCTIONAL TESTING		
Power ON/OFF		
Self-test without error message		
LED or Photodetector functionality		
SPO2 reading		
Pulse reading		
Battery operation		
Sensor detection		

Alarm function		
SPO2 simulator or calibrate/verify with reference oximeter		
<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Disconnect reusable parts and disinfect		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## 2.8 High Flow Nasal Cannula (HFNC)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	
Flow analyzer/oxygen analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Pest Infestation		
Humidifier chamber		
Oxygen inlet and tubing		
Nasal cannula		
Indicators/Display		
Fuses		
Fittings/Connectors/Leaks		
Strain Relief		
FUNCTIONAL TESTING		
Power On and self-test		
Display screen		
Flow rate output		
Heating function of humidifier		
FiO2 output		
Battery backup		
Fans and cooling system		
CLEANING and DISINFECTION		
Wipe external surface		

Disassemble and clean reusable parts		
Rinse and dry humidifier		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 2.9 Holter Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	
ECG simulator	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Chassis/Housing		
Mount / Fasteners		
Casters/Brakes		
AC Plug/receptacles		
Line Cord		
Strain Reliefs		
Fuses		
Tubes /Hoses		
Fittings/Connectors		
Belt pouch		
Harness		
Electrode, lead wire		
Display screen		
Labels/Safety Sticker		
Pest Infestation		
FUNCTIONAL TESTING		
Power ON/OFF		
Self-test without error message		
ECG leads, cables and signal		
Electrode clips		
Leads detection		

Recording time/ ensure accurate time and date		
USB/ Bluetooth/ Wi-Fi connectivity		
Memory card/ internal storage		
Battery and charging		
Verify ECG with simulator		
<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Disconnect reusable parts and disinfect		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## 2.10 ICU Bed, Electric

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
<b>VISUAL INSPECTION</b>	√ / X	<b>Action needed/Action taken</b>
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Pest Infestation		
Frames		
Wheels/ Brakes		
Mattress condition		
Side rails/ Buffers		
Movement indicators, Screws		
Fuses		
Strain Relief		
<b>FUNCTIONAL TESTING</b>		
Check Movement modes		
Battery backup test (if built-in)		
Power cable and plug inspection		
Unusual Noises during Movement, wheels		
Sensors		
Remote control		
<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Disassemble and clean reusable parts		
Disinfect mattress		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:



## 2.11 Infusion Pump

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	
Infusion pump analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Chassis/Housing		
Mount / Fasteners		
AC Plug/receptacles		
Line Cord		
Strain Reliefs		
Fuses		
Tubes /Hoses		
Fittings/Connectors		
Control /switches		
IV set path		
Display		
Labels/Safety Sticker		
Pest Infestation		
FUNCTIONAL TESTING		
Power ON/OFF		
Lockout Interval (PCA pumps only)		
Pump Mechanism		
Verify infusion modes		
Alarm test (air-in-line)		
Occlusion sensor		
Air bubble detector		
Bolus delivery		

Battery run time		
Door sensor		
<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Disconnect reusable parts and disinfect		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	
Volume infused	±5%	
Flow accuracy	±5%	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 2.12 Patient Monitor

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	
ECG/NIBP/SPO2, etc simulator	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Pest Infestation		
Electrodes/ Patient cables ECG, SpO <sub>2</sub> , NIBP, Temp, IBP, EtCO <sub>2</sub> , etc.)		
Battery/ charger		
Printer Head		
Indicators/Display		
Fuse		
Fittings/Connectors		
Strain Relief		
<b>FUNCTIONAL TESTING</b>		
Power On and self-test		
Display screen		
Waveforms		
NIBP cuff inflation and deflation		
Alarm sound		
Motor drive		
Battery backup and run time		
Validate/verify readings ecg/nibp/spo2, etc		

<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Disassemble and clean reusable parts		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	
ECG	±1 bpm	
SPO2	±2%	
NIBP	±5 mmHg	
Temperature	±0.2°C	
IBP/EtCO2		

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## 2.13 Syringe Pump

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	
Infusion rate Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Chassis/Housing		
Mount / Fasteners		
Casters/Brakes		
AC Plug/receptacles		
Line Cord		
Strain Reliefs		
Tubes /Hoses		
Fittings/Connectors		
Control /switches		
Display		
Labels/Safety Sticker		
Pest Infestation		
Fuse		
FUNCTIONAL TESTING		
Power ON/OFF		
Lockout Interval (PCA pumps only)		
Syringe lock		
Syringe clamp		
Plunger holder		
Infusion modes		
Syringe Recognition		
Occlusion alarm		

Internal battery condition		
Alarm audio and visual (air-in-line, empty container, open, nurse call)		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	
Flow rate	±5%	
Volume accuracy	±5%	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 2.14 Ventilator

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	
Gas Flow analyser/o2 analyzer	
Test lung	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Chassis/Housing		
Mount / Fasteners		
Casters/Brakes		
AC Plug/receptacles		
Line Cord		
Strain Reliefs		
Fuses		
Tubes /Hoses		
Fittings/Connectors		
Control /switches/Fuse		
Air filter, exhalation valves, flow sensors		
Labels/Safety Sticker		
Pest Infestation		
FUNCTIONAL TESTING		
Power ON/OFF		
Heater		
Humidifier		
Compressor		
Oxygen sensor		
Patient breathing circuit		
Flow sensor, exhalation valve		
Pressure relief mechanism		

Modes (AC, SIMV, CPAP, PSV, etc.)		
Alarm functionality (high, low, medium, apnea, disconnect)		
Date/ Time setting		
Fail-safe oxygen valve		
Gauge and regulators		
Verify Gas supply within pressure range		
Leak test		
Touch screen, screen lock		
Battery back up		
<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Disconnect reusable parts		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	
Tidal Volume	±10% of set value	
Respiratory Rate	± 2bpm	
PEEP	within ±2 cmH <sub>2</sub> O	
FiO <sub>2</sub>	Within ±5% of set value	
Inspiratory Flow	Within ±10% of expected value	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		

Approved By:



### **3. Operation Theatre Equipment**

3.1 Anesthesia Machine .....	60
3.2 Arthroscopy tower .....	62
3.3 Blood and Fluid Warmer .....	64
3.4 Electro Surgical Unit (ESU).....	66
3.5 Laparoscopy Tower .....	68
3.6 Lithotripsy Machine .....	70
3.7 Operating Table (OT Table).....	72
3.8 OT Light (Ceiling) .....	74
3.9 OT Light (Portable).....	76

### 3.1 Anesthesia Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Strain Relief		
Castors/brakes		
Breathing circuit		
Humidifier		
Gas outlet/inlet		
Flowmeter		
Bellows		
Pest Infestation		
Fuse		
Door alignment/gasket, seal		
FUNCTIONAL TESTING		
Power ON/OFF		
Self-test		
Breathing system		
Pressure relief mechanism		
Audible signals		
Modes and settings		
Additional (if any)		
CLEANING and DISINFECTION		

Wipe external surface		
-----------------------	--	--

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	
Oxygen flush valve	35-75 L/min; O2 flow meter drop <1 L/min at 2 L/min; return to 2 L/min <2 sec	
Breathing system	≥30 cm H2O, 30 sec	
APL Valve	~1 to >30 cm H2O	
Minimum Oxygen Flow and Percentage	100-250 mL/min	
Flow meters	±10%	
PEEP Valve	System pressure <1 cm H2O and ±1.5 cm volume display	
Exhaled Volume Monitor	±15% test lung value; ±15% minute volume display	
FiO2 Accuracy		

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		

Approved By:

### 3.2 Arthroscopy tower

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches/Fuse		
Strain Relief		
Pest Infestation		
Fittings/Connectors		
FUNCTIONAL TESTING		
Power ON/OFF		
Self-test		
Audible Signals		
Camera System		
Camera head (zoom, focus, tilt)		
White balance		
Image clarity		
Light Source		
Lamp functionality		
Brightness level		
Monitor		
Display clarity		
Flickering		
HDMI/DVI or equivalent		
Recording Unit		
Video/ audio recording		
Storage device		
Irrigation Pump		

Proper pressure setting		
Flow rate accuracy		
Tubing connection		
<b>RF Ablator</b>		
Power ON/OFF		
Power output levels adjustable and stable		
Monopolar and bipolar modes functional		
Audible alarms and warning signals operational		
Footswitch and handpiece tested		
Patient return electrode monitoring (REM) working		
<b>Shaver System</b>		
Blade/Burr condition and expiration		
Blade rotation/oscillation verification		
Suction functionality		
Shaver Handpiece and Footswitch tested		
<b>TELESCOPE</b>		
Optical clarity		
Fiber optic light cable intact without breakage		
Working channel		
<b>CLEANING &amp; MAINTENANCE</b>		
Wipe down exterior surface		
Clean lens and light connectors		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☒ Passed ☐ Service Required

<b>REMARKS</b>

S. No.	Performed By	Signature
1)		
2)		

Approved By:

### 3.3 Blood and Fluid Warmer

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger		
Controls/Switches		
Fuses		
Power cables, connectors, and wires for wear/damage		
Fluid pathway free from blockages		
Heating plate or warming chamber undamaged		
Mount/Fasteners		
Pest Infestation		
Indicators/Display		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Temperature settings adjustable and functional		
Heating element warms fluids to the desired range		
Flow rate maintained without obstructions		
Flow rate monitoring accuracy checked		
Audible and visual alarms functional		
Temperature accuracy verified		
Overheating protection mechanism tested		
Additional (if any)		

<b>DISPLAY AND INTERFACE</b>		
Touchscreens/ buttons		
Display screen		
<b>CLEANING and DISINFECTION</b>		
External surfaces disinfected		
Fluid pathways flushed and cleaned		
Tubing and accessories free of contamination		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

### 3.4 Electro Surgical Unit (ESU)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
No visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Power cable and plug in good condition		
Footswitch, handpiece, and accessories intact		
Electrode holder free of corrosion or wear		
Ventilation grilles free of dust and obstruction		
Mount/Fasteners		
Pest infestation		
Indicators/Display		
Fuses		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Power output levels adjustable and stable		
Monopolar and bipolar modes functional		
Audible alarms and warning signals operational		
Footswitch and handpiece tested		
Patient return electrode monitoring(REM) working		
Alarm activation verified		
Automatic power shutoff tested		
Additional (if any)		
DISPLAY AND INTERFACE		
Touchscreens/buttons		
Display screen		



<b>CLEANING AND DISINFECTION</b>		
Handpiece and electrodes cleaned and sterilized		
Footswitch and control panel disinfected		
Storage area clean and contamination-free		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

### 3.5 Laparoscopy Tower

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Power cables, connectors, and wires for wear/damage		
Lens free from scratches, fogging, or cracks		
Cart structure stable and wheels move smoothly		
Footswitch (if applicable) in good condition		
Mount/Fasteners		
Pest Infestation		
Indicators/Display		
Fuses		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Light source operational and brightness adjustable		
Optical Light Cable Inspection		
Camera head and coupler functioning properly		
Image quality sharp and free of distortion		
Insufflator providing correct gas flow and pressure		
Monitor displaying sharp and color-accurate images (White balance)		

Video recorder or capture system functional		
CO <sub>2</sub> Supply and Flow meter check		
Additional (if any)		
<b>DISPLAY AND INTERFACE</b>		
Touchscreens/ buttons		
Display screen		
<b>TELESCOPE</b>		
Optical clarity		
Fiber optic light cable intact without breakage		
Working channel		
<b>CLEANING and DISINFECTION</b>		
External surfaces disinfected		
Camera and light cables cleaned properly		
Light source filters cleaned or replaced		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

### 3.6 Lithotripsy Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/ Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Battery/Charger		
Controls/Switches		
Fuses		
Power cables, connectors, and lead wires for wear/damage		
Treatment table and patient positioning system functional		
Shockwave generator intact with no signs of wear or leaks		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Footswitch and remote control operational		
Focus and alignment system properly calibrated		
Fluoroscopy or ultrasound guidance functioning		

Water cushion integrity and water level maintained		
Shockwave energy levels adjustable and within specifications		

Emergency stop button working		
Additional (if any)		
<b>DISPLAY AND INTERFACE</b>		
Touchscreens/ buttons		
Display screen		
Printer (if any)		
<b>CLEANING and DISINFECTION</b>		
Water system free of contamination		
Patient-contact surfaces properly disinfected		
Ultrasonic gel or contact medium replaced		
Disposable accessories properly discarded		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

<b>REMARKS</b>

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

### 3.7 Operating Table (OT Table)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
<b>VISUAL INSPECTION</b>	√ / X	<b>Action needed/Action taken</b>
Casing/Housing/Chassis		
Labels/Safety Sticker		
Tabletop surface free from damage or corrosion		
All moving parts (joints, hinges) inspected		
Side rails, clamps, and accessories in good condition		
Casters and brakes working properly		
Pest Infestation		
Strain Relief		
<b>FUNCTIONAL TESTING</b>		
Power ON/OFF		
Height adjustment functions properly		
Trendelenburg & reverse Trendelenburg positions tested		
Lateral tilt adjustments working		
Head, leg, back, and Kidney bridge sections adjustable		
Remote control or foot pedal operational		
No oil or hydraulic fluid leakage		
Actuators moving smoothly without resistance		
All mechanical locks and safety stops operational		
Battery backup (if available) functional		
Additional (if any)		

<b>CLEANING and DISINFECTION</b>		
Tabletop and frame disinfected after each use		
Straps and patient supports sanitized		
Upholstery and padding intact and cleaned		
Storage area clean and contamination-free		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

### 3.8 OT Light (Ceiling)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Light head, arm, and suspension system intact		
Joints and hinges move smoothly without resistance		
Power cable, plugs, and connectors secure		
Dome cover and protective glass clean and undamaged		
Controls/Switches/Fuse		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Light source intensity adjustable and functional		
Light focus and beam adjustment working properly		
No flickering or unusual dimming		
Backup battery (if available) operational		
Handles and positioning mechanism working properly		
Additional (if any)		
CLEANING and DISINFECTION		
Light dome and arm disinfected		
Handles cleaned and sterilized		
Filters and reflectors dust-free		
No contamination or residue buildup		



<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

### 3.9 OT Light (Portable)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Wheels/Brakes		
Joints and hinges move smoothly without resistance		
Power cable, plugs, and connectors secure		
Dome cover and protective glass clean and undamaged		
Pest infestation		
Controls/Switches/Fuse		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Light source intensity adjustable and functional		
Light focus and beam adjustment working properly		
No flickering or unusual dimming		
Backup battery (if available) operational		
Handles and positioning mechanism working properly		
Additional (if any)		
CLEANING and DISINFECTION		
Light dome and arm disinfected		
Handles cleaned and sterilized		
Filters and reflectors dust-free		
No contamination or residue buildup		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## **4. Oxygen Generators and Storage Devices**

4.1 Oxygen Concentrator .....	79
4.2 Oxygen Plant and MGPS .....	81

## 4.1 Oxygen Concentrator

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	
Oxygen Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Controls/Switches/Fuses		
Power cables, connectors, and wires for wear/damage		
Wheels		
Presence of accessories like (filters, humidifier bottles)		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Start up indicator		
Alarms		
Examine humidifier bottle		
Verify flow rate setting		
Compressor functioning		
Check Nitrogen purge		
Zeolite canister		
Reservoir tank		
Flow meter		
Oxygen mask		
Patient Bacterial filter		

Check tubing, canula and connectors for leaks and cracks		
Oxygen concentration (flow 5L/min) Should be > 90%		
<b>CLEANING and DISINFECTION</b>		
Wipe external surface with damp cloth		
Clean air filter		
Clean humidifier bottle		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 4.2 Oxygen Plant and MGPS

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

	Manufacturer	Make/Model	Serial Number
Air Compressor			
PSA Plant			
Oxygen Booster Compressor			

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	
Oxygen analyzer	

Daily VISUAL INSPECTION	Sun	Mon	Tue	Wed	Thurs	Fri	Sat
Remove any combustible materials in or near plant							
Are all ventilation systems working?							
Empty Condensate Container(if equipped)							
Is the air dryer condensate draining correctly?							
Is the air tank condensate draining correctly?							
Is the in-line filters' condensate draining correctly?							
Is the compressor oil level acceptable?							
Sweep/Mop and dust surfaces							
Are there any oil leaks at the bottom of compressor?							
Pressure check (To be performed by operator )							
DAILY DATA COLLECTION	Sun	Mon	Tue	Wed	Thurs	Fri	Sat
PDP Temperature(°C)							
Oxygen Purity (%)							
Number of cylinders filled(time started/time filled)							
Air compressor hours							
Oxygen booster compressor hours							
PSA Plant hours(if applicable)							
Alarms code? (Please take picture of alarm)							
<b>MGPS</b> <b>Montly check: Regulators, valves and outlets</b>							

Component	Service	Recommended Frequency	Hours	Date	Initials
Air Compressor	Change air filter				
	Change oil				
	Change oil filter				
	Change oil separator element				
	Inspect belt(if equipped)				
	Clean air dryer condenser radiator				
	Clean aftercooler and intercooler				
	Change coalescing filter#1				
	Change coalescing filter#2				
	Change coalescing filter#3				
	Change coalescing filter#4				
PSA Plant	Change coalescing filter				
RIX Booster Compressor	Check belt tension				
	Check for bearing wear				
	Clean cooling fans				
	Clean in-line filter				
	Change 1 <sup>st</sup> and 2 <sup>nd</sup> stage piston rings				
<b>QUANTITATIVE TEST</b>					
<b>Tests</b>		<b>Ref value</b>	<b>Remarks</b>		
Grounding Resistance		<0.5 Ohm			
Leakage current chassis to IEC 60601		µA			
Leakage current patient leads acc. to IEC 60601		µA			

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		

Approved By:



## **Module 3: CSSD, Delivery, Hemodialysis, and Neurology Equipment**

## List of Equipment

<b>5. CSSD Equipment .....</b>	<b>85</b>
5.1 Autoclave .....	86
5.2 ETO Sterilizer (ethylene oxide) .....	88
5.3 Flash Autoclave.....	90
5.4 Microwave/ Frictional Heat .....	92
5.5 Plasma Sterilizer.....	94
<b>6. Maternity Equipment .....</b>	<b>96</b>
6.1 Cardiotocography (CTG) Machine .....	97
6.2 Fetal Doppler.....	99
6.3 Fetal Monitor.....	101
6.4 Infant Incubator .....	103
6.5 Phototherapy Unit (Infant) .....	105
6.6 Radiant Warmer .....	107
<b>7. Hemodialysis Equipment .....</b>	<b>109</b>
7.1 Dialyzer Reprocessing Machine.....	110
7.2 Hemodialysis Machine.....	112
7.3 Water Treatment System.....	114
<b>8. Neurology Equipment.....</b>	<b>116</b>
8.1 EEG .....	117
8.2 EMG .....	119
8.3 Intraoperative Neuro Monitoring System .....	121
8.4 Neuro Bone Drill.....	123
8.5 Surgical Neuro Microscope.....	125

## **5. CSSD Equipment**

5.1 Autoclave .....	86
5.2 ETO Sterilizer (ethylene oxide) .....	88
5.3 Flash Autoclave.....	90
5.4 Microwave/ Frictional Heat .....	92
5.5 Plasma Sterilizer.....	94

## 5.1 Autoclave

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Pest Infestation		
Indicators/ Display		
Cable/electric wires		
Labelling		
Drum, trolley, tripod and accessories		
Fuse		
Fittings/ Connectors/ leaks		
Door alignment/gasket, seal		
Door, Chamber/Tray		
Strain Relief		
FUNCTIONAL TESTING		
Power ON		
Rotary Switch		
Air relief valve		
Pressure relief valve		
Water level		
Heating element		
Pressure switch/ relay switches		

Timer Accuracy		
Gasket		
Door Mechanism		
Air exhaust tube		
Compressor		
Water leakage		
Steam Pressure leakage		
Sterilization cycle		
Check Sterility		
Vacuum test		
Check temperature and pressure		
Check water quality		
Check emergency switch button		
Check motors		
<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Check drain line		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	≤500µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

<b>REMARKS</b>

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 5.2 ETO Sterilizer (ethylene oxide)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Pest Infestation		
Indicators/ Display		
Cable/ Electric wires		
Accessories		
Fuse		
Fittings/ Connectors/ Leaks		
Door alignment/gasket, seal		
Door, Chamber/tray		
Strain relief		
FUNCTIONAL TESTING		
Power ON		
Check heat-up time		
Check pressure build up		
Check door, gasket/seal		
Emergency switch check		
Check eto gas leak		
Pressure relief valve		
CLEANING and DISINFECTION		
Wipe external surface		

Check drain line		
------------------	--	--

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

### 5.3 Flash Autoclave

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Pest Infestation		
Indicators/ Display		
Cable		
Accessories		
Fuse		
Fittings/ Connectors/ Leaks		
Door, Chamber/tray		
Door alignment/gasket, seal		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Check heat-up time		
Check pressure build up		
Pressure relief valve		
Door gasket, check leak		
Check Sterility		
Check Heating element		
Check water level/ quality		



Check drainage system		
<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Check drain line		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## 5.4 Microwave/ Frictional Heat

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Pest Infestation		
Indicators/ Display		
Cable		
Accessories		
Fuse		
Fittings/ Connectors		
Door alignment, gasket/seal		
Strain Relief		
FUNCTIONAL TESTING		
Power ON		
Check control panel function		
Inspect magnetron and waveguide for issues.		
Monitor microwave generators for leaks.		
Inspect, drain, and replace oil if necessary.		
Replace filters, if necessary		
Inspect grinding and shredding knives, motors, and wear bars		
Sterilization cycle		

Inspect moving parts for misalignment.		
Inspect door seals.		
Emergency switch check		
<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Check drain line		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 5.5 Plasma Sterilizer

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Pest Infestation		
Indicators/ Display		
Cable/electric wires		
Accessories		
Fuse		
Fittings/ Connectors		
Locks/Brakes		
Inspect Door gasket for debris, inside chamber		
Visible damage		
Door, loading tray		
Strain Relief		
FUNCTIONAL TESTING		
Power ON		
Ensure cassette/cartridge properly/ liquid cup installed and not expired		
Verify working of printer		
Door locking mechanism		
Vacuum pump		

Check filters		
Run full system (if possible)		
Review cycle count		
Check for error codes, electrical connection, control panel		
Check the working of pressure and temperature sensor		
Check power backup and records of cycle		
Check plasma generation		
<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Clean air intake and exhaust filter (if needed)		
Clean interior chamber and trays with a lint-free cloth		
Clean door		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

<b>REMARKS</b>

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## **6. Maternity Equipment**

6.1 Cardiotocography (CTG) Machine .....	97
6.2 Fetal Doppler .....	99
6.3 Fetal Monitor .....	101
6.4 Infant Incubator .....	103
6.5 Phototherapy Unit (Infant) .....	105
6.6 Radiant Warmer .....	107

## 6.1 Cardiotocography (CTG) Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger		
Power cables, connectors, and wires for wear/damage		
Probe holders and paper tray in place		
Mount/Fasteners		
Controls/switches		
Pest Infestation		
Strain Relief		
Fuse		
Fittings/Connectors		
Indicators/Display		
FUNCTIONAL TESTING		
Power ON/OFF		
Indicator lights (power, alarm, battery) functional		
FHR (Fetal Heart Rate) probe clean and functioning		
TOCO (Tocodynamometer) probe working properly		
FHR signal detection accurate on phantom/test mode		
TOCO signal detection within expected range		
Manual and automatic recording modes functional		
Paper feed and printing quality verified		
Additional (if any)		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		

Display screen		
Printer (if any)		
<b>CLEANING and DISINFECTION</b>		
Probes disinfected after use		
All contact surfaces wiped and cleaned		
Gel cleaned from probes and unit		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

<b>REMARKS</b>

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**



## 6.2 Fetal Doppler

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger		
Controls/Switches		
Fuses		
Power cables, connectors, and wires for wear/damage		
Mount/Fasteners		
Pest Infestation		
Indicators/Display		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Audio output clear without distortion		
Volume control functioning		
Signal sensitivity test passed		
Probe detects fetal heart rate (FHR) reliably		
Additional (if any)		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		
Display screen		
Backlight/display brightness functioning properly		
CLEANING and DISINFECTION		
External surfaces disinfected		
Probe cleaned and disinfected		

No gel residue or buildup on probe		
------------------------------------	--	--

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

### 6.3 Fetal Monitor

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger		
Probes and cables in good condition (no fraying or damage)		
Printer cover, paper tray, and connectors intact		
Mount/Fasteners		
Controls/Switches		
Pest infestation		
Indicators/Display		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
FHR (Fetal Heart Rate) and TOCO probes detect signal on phantom/test mode		
Auto and manual modes operational		
Alarm indicators and volume functional		
Twin monitoring (if available) works correctly		
Interface with EMR or external devices works properly		
Event markers and manual annotation working		
Paper feed smooth and no jams		
Additional (if any)		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		

Display screen		
Printer		
<b>CLEANING and DISINFECTION</b>		
Probes cleaned and disinfected		
Gel or residue removed from sensors		
Patient-contact accessories replaced if worn		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 $\mu$ A	
Leakage current patient leads acc. to IEC 60601	<100 $\mu$ A	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## 6.4 Infant Incubator

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger		
Power cables, connectors, and wires for wear/damage		
Incubator walls and hood free from cracks or damage		
Wheels and brakes functional		
Access ports, doors, and hinges working properly		
Mount/Fasteners		
Controls/Switches		
Pest infestation		
Indicators/Display		
Fuse		
Door, Chamber/tray		
Door alignment/gasket, seal		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Temperature control system functioning correctly		
Humidity control system functioning correctly		
Oxygen delivery system working properly		
Air circulation fan operating without noise		
Alarm system tested (temperature, oxygen, humidity)		
Humidity level calibration checked		

Air circulation performance tested		
Additional (if any)		
<b>DISPLAY AND INTERFACE</b>		
Touchscreens/ buttons		
Display screen		
<b>CLEANING and DISINFECTION</b>		
Interior and exterior surfaces disinfected		
Mattress, bedding, and accessories cleaned		
Humidifier reservoir cleaned and refilled		
Air filters checked and replaced if necessary		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 $\mu$ A	
Leakage current patient leads acc. to IEC 60601	<100 $\mu$ A	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 6.5 Phototherapy Unit (Infant)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger		
Controls/Switches/Fuses		
Power cables, connectors, and wires for wear/damage		
Wheels or stand stable and lockable (if applicable)		
Mount/Fasteners		
Pest Infestation		
Indicators/ Display		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Light intensity within acceptable therapeutic range		
Timer operates and resets properly		
Audible/visual alarms functional (if applicable)		
Fan cooling system working (if present)		
Light uniformity across treatment area		
Hours-of-use meter checked and recorded		
Additional (if any)		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		
Display screen		
CLEANING and DISINFECTION		

External surfaces disinfected		
Lamp covers and patient-contact surfaces cleaned		
Cooling fan/filter cleaned (if applicable)		
Barrier protections applied where necessary		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:



## 6.6 Radiant Warmer

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger		
Power cables, connectors, and wires for wear/damage		
Mattress and bed platform clean and undamaged		
Side rails, drawers, and trays functional		
Overhead heating element housing clean and crack-free		
Stand/base stable with lockable wheels (if mobile)		
Mount/Fasteners		
Controls/Switches		
Pest infestation		
Indicators/Display		
Fuse		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Manual and servo modes selectable and functional		
Skin temperature probe functional		
Heater turns ON/OFF as per temperature setting		
Digital/ analog display accurate and readable		
Timer/Alarm functions tested		
Phototherapy unit (if attached) functions correctly		
Oxygen blender and flowmeter (if integrated) tested		

Additional (if any)		
<b>DISPLAY AND INTERFACE</b>		
Touchscreens/ buttons		
Display screen		
<b>CLEANING and DISINFECTION</b>		
All surfaces disinfected		
Skin probe and accessories cleaned per protocol		
Mattress and linens clean and undamaged		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## **7. Hemodialysis Equipment**

7.1 Dialyzer Reprocessing Machine.....	110
7.2 Hemodialysis Machine.....	112
7.3 Water Treatment System.....	114

## 7.1 Dialyzer Reprocessing Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Visible damage		
Power cable and plug in good condition		
Water leakage from inlet and drainage pipe		
Mount/Fasteners		
Labels/Safety Sticker		
Control/Switches/Fuse		
Pest Infestation		
Strain Relief		
Indicators/Display		
FUNCTIONAL TESTING		
Power ON/OFF		
Self-test/automatic test passes		
Check the water supply and drainage system		
Perform a leak and pressure test to ensure there are no internal leaks.		
Conduct a residual test to ensure effective rinsing and the absence of residual disinfectant or contaminants in the reprocessed dialyzer.		
Alarm system and visual/audible indicators functional		
Check printer/paper		
CLEANING and DISINFECTION		
Wipe external surface		
Disinfect the machine		

Clean air vent and fans		
-------------------------	--	--

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 7.2 Hemodialysis Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	Filters
Measuring flask	
Dialysate Reference Meter	
Universal Calibration Kit (PH, temperature, conductivity, pressure, flow rate)	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Visible damage (cracks, wear, loose connectors)		
Power cable and plug in good condition		
Suctiontube, dialysate line and dialyzer couplings clean		
Air inlet filter, water inlet filterand suction tube filter present and clean		
Leakage from inlet and drainage pipe		
Check wheels/lock		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches/Fuses		
Pest Infestation		
Indicators/Display		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Self-test/automatic test passes		
Alarm system and visual/audible indicators functional		
Display settings (pressure, conductivity, UF, blood leak time, etc.) adjustable and accurate		
Check the blood delivery system		

Check the dialysate temperature		
Check the blood pressure monitoring system		
Check the blood leak detection system		
Check the conductivity monitoring system		
Check the heparin delivery system		
Check Heating element,hydraulic,air leakage,check heat exchanger and balancing chamber		
<b>DISPLAY AND INTERFACE</b>		
Touchscreens/ buttons		
Display screen		
<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Disinfect hydraulics of the machine		
Clean air vent and fans		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100     μA	
Leakage current patient leads acc. to IEC 60601	<100     μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed    ☐ Service Required

<b>REMARKS</b>

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

### 7.3 Water Treatment System

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Visible damage		
Power cable and plug in good condition		
Water leakage, gauge, indicator, control panel, flowmeter		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches/Fuses		
Pest Infestation		
Strain Relief		
Indicators/Display		
FUNCTIONAL TESTING		
Power ON/OFF		
Check the inlet and outlet pressures of the RO plant		
Check adequate water flow and pressure from the source water.		
Check membranes like micron filter		
Inspect and clean the RO membrane, if necessary		
Check the UV lamp		
Verify that the RO plant is properly connected to the hemodialysis machine		
Check and verify water according to AAMI standard		
Conduct bacterial/chemical test		
Check pumps and filters		



<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Clean flow meters		
Backwash and Rinse		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## **8. Neurology Equipment**

8.1 EEG .....	117
8.2 EMG .....	119
8.3 Intraoperative Neuro Monitoring System .....	121
8.4 Neuro Bone Drill .....	123
8.5 Surgical Neuro Microscope .....	125

## 8.1 EEG

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Electrodes and caps in good condition		
Labels/Safety Sticker		
Battery/Charger		
Controls/Switches		
Fuses		
Mount/Fasteners		
Indicators/Display		
Strain Relief		
Power cables, connectors, and lead wires for wear/damage		
Electrode gel/cream available & not expired		
Pest Infestation		
FUNCTIONAL TESTING		
Power ON/OFF		
Recording functions correctly		
Electrode impedance check passes within limits		
Signal quality is clear with no excessive noise		
Calibration performed and within acceptable range		
Printing function working correctly		
Additional (if any)		
Emergency stop function operational		

<b>DISPLAY AND INTERFACE</b>		
Touchscreens/ buttons		
Display screen		
Printer		
<b>CLEANING and DISINFECTION</b>		
Electrodes and caps properly cleaned and disinfected		
Patient-contact surfaces sanitized		
Gel, paste, or consumables stored correctly		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 $\mu\text{A}$	
Leakage current patient leads acc. to IEC 60601	<100 $\mu\text{A}$	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 8.2 EMG

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Electrodes and caps in good condition		
Labels/Safety Sticker		
Battery/Charger		
Controls/Switches		
Fuses		
Mount/Fasteners		
Indicators/Display		
Strain Relief		
Power cables, connectors, and lead wires for wear/damage		
Electrode gel/cream available & not expired		
Needles		
Pest Infestation		
FUNCTIONAL TESTING		
Power ON/OFF		
Internal Battery(if equipped)		
Recording functions correctly		
Electrode impedance check passes within limits		
Signal quality is clear with no excessive noise		
Calibration performed and within acceptable range		
Accuracy Rate of Stimulus		

Alarm Systems/Audible Signal		
Printing function working correctly		
Emergency stop function operational		
Additional (if any)		
<b>DISPLAY AND INTERFACE</b>		
Touchscreens/ buttons		
Display screen		
Printer		
<b>CLEANING and DISINFECTION</b>		
Electrodes and caps properly cleaned and disinfected		
Patient-contact surfaces sanitized		
Gel, paste, or consumables stored correctly		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100     μA	
Leakage current patient leads acc. to IEC 60601	<100     μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

### 8.3 Intraoperative Neuro Monitoring System

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	Electrodes

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger		
Power cables, connectors, and wires for wear/damage		
Electrodes/Lead wire damage inspection		
Wheels and brakes functional		
Mount/Fasteners		
Controls/Switches		
Pest Infestation		
Indicators/Display		
Fuses		
Strain Relief		

FUNCTIONAL TESTING		
Power ON/OFF		
UPS/ Battery Backup		
Check signal acquisition and waveform display		
Stimulation current Duration		
Check signal noise levels		
Software		
Alarm/Audible Signals		
Printers (if present)		

Additional (if any)		
<b>DISPLAY AND INTERFACE</b>		
Touchscreens/ buttons		
Display screen		
<b>CLEANING and DISINFECTION</b>		
Interior and exterior surfaces disinfected		
Mattress, bedding, and accessories cleaned		
Humidifier reservoir cleaned and refilled		
Air filters checked and replaced if necessary		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:



## 8.4 Neuro Bone Drill

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	Drill bits

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger		
Controls/Switches		
Fuses		
Power cables, connectors, and wires for wear/damage		
Tubes/hoses		
Mount/Fasteners		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Motor Movements/Speed Testing		
Attachments/hubs		
Air pressure		
Suction System		
Footswitch		
Emergency buttons(if any)		
Additional (if any)		
CLEANING and DISINFECTION		
External surfaces disinfected		
Use of cleaning solutions		

Use of Cleaning Caps attached on the cleaning solution bottles		
Storage area clean and contamination-free		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 $\mu$ A	
Leakage current patient leads acc. to IEC 60601	<100 $\mu$ A	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 8.5 Surgical Neuro Microscope

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger		
Control Switches		
Power cables, connectors, and wires for wear/damage		
Alignments of optical parts or lenses		
Presence of lenses		
Mount/Fasteners		
Pest Infestation		
Fuses		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Movement of Arms		
Check light Intensity		
Check zooms and focus		
Check Image clarity		
Verify working of magnification		
Check Eyepiece and objectives adjustments		
Check all buttons and knobs		
Inspect Camera		
Check connection of cables		

Check motor movements		
Hand switch/Focusing Remote		
Inspect Footswitch		
Additional (if any)		
<b>DISPLAY AND INTERFACE</b>		
Touchscreens/ buttons		
Display screen		
Printer (if any)		
<b>CLEANING and DISINFECTION</b>		
Wipe External Surface		
All contact surfaces wiped and cleaned		
Clean Lenses		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## **Module 4: Laboratory Equipment**

## List of Equipment

<b>9. Laboratory Equipment.....</b>	<b>130</b>
9.1 Automatic Slide Stainer .....	132
9.2 Bilirubinometer .....	134
9.3 Binocular Microscope .....	136
9.4 Biochemistry Analyzer (Fully Automated).....	138
9.5 Biochemistry Analyzer (Semi-Automated).....	140
9.6 Biosafety Cabinet .....	142
9.7 CD4 counter .....	144
9.8 Centrifuge Machine .....	146
9.9 Coagulation Analyzer.....	148
9.10 Colorimeter.....	150
9.11 Cyto Centrifuge Machine .....	152
9.12 Deep Freezer .....	154
9.13 Dry Bath Incubator.....	156
9.14 Electrolyte Analyzer.....	158
9.15 Electrophoresis Machine .....	160
9.16 Extraction Machine .....	162
9.17 Flow Cytometer.....	164
9.18 GeneXpert .....	166
9.19 Hematology Analyzer .....	168
9.20 High Performance Liquid Chromatography (HPLC Analyzer) .....	170
9.21 Hot Air Oven.....	172
9.22 Immuno Assay Analyzer (CLIA).....	174
9.23 Immuno Assay Analyzer (ELISA-Reader) .....	176
9.24 Immuno Assay Analyzer (ELISA-Washer) .....	178
9.25 Immuno Assay Analyzer (FIA).....	180
9.26 Immuno Assay Analyzer (Fully Automated - ELISA) .....	182
9.27 Incubator.....	184
9.28 Microtome .....	186
9.29 PCR Cabinet.....	188

9.30 PCR Machine .....	190
9.31 Protein Analyzer/Nephelometry.....	192
9.32 Refrigerated Centrifuge Machine.....	194
9.33 Refrigerator .....	196
9.34 Shaker (Mixer) .....	198
9.35 Tissue Processor.....	200
9.36 Urine Analyzer (Semi Automated) .....	202
9.37 Water Bath.....	204

## **9. Laboratory Equipment**

9.1 Automatic Slide Stainer .....	132
9.2 Bilirubinometer .....	134
9.3 Binocular Microscope .....	136
9.4 Biochemistry Analyzer (Fully Automated).....	138
9.5 Biochemistry Analyzer (Semi-Automated).....	140
9.6 Biosafety Cabinet .....	142
9.7 CD4 counter .....	144
9.8 Centrifuge Machine.....	146
9.9 Coagulation Analyzer.....	148
9.10 Colorimeter.....	150
9.11 Cyto Centrifuge Machine .....	152
9.12 Deep Freezer .....	154
9.13 Dry Bath Incubator.....	156
9.14 Electrolyte Analyzer.....	158
9.15 Electrophoresis Machine .....	160
9.16 Extraction Machine .....	162
9.17 Flow Cytometer.....	164
9.18 GeneXpert .....	166
9.19 Hematology Analyzer .....	168
9.20 High Performance Liquid Chromatography (HPLC Analyzer) .....	170
9.21 Hot Air Oven.....	172
9.22 Immuno Assay Analyzer (CLIA).....	174
9.23 Immuno Assay Analyzer (ELISA-Reader) .....	176
9.24 Immuno Assay Analyzer (ELISA-Washer) .....	178
9.25 Immuno Assay Analyzer (FIA).....	180
9.26 Immuno Assay Analyzer (Fully Automated - ELISA) .....	182
9.27 Incubator.....	184
9.28 Microtome .....	186
9.29 PCR Cabinet.....	188
9.30 PCR Machine .....	190



9.31 Protein Analyzer/Nephelometry.....	192
9.32 Refrigerated Centrifuge Machine.....	194
9.33 Refrigerator .....	196
9.34 Shaker (Mixer) .....	198
9.35 Tissue Processor.....	200
9.36 Urine Analyzer (Semi Automated) .....	202
9.37 Water Bath.....	204

## 9.1 Automatic Slide Stainer

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Fuses		
Power cable, plugs, and connectors secure		
Check and replace reagents (if required)		
Check drainage hole of the tank is clogged and drainage pipe for kink and broken		
Check loading pipe for bent or damage		
Check and replace charcoal filter		
Check for any residue present at the bottom of the reagent tank		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Use Teflon grease to grease the cams of the agitation shafts		
Reagent loading system working		
Pipetting system accurate (if present)		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		
Display screen		
Printer (if any)		
CLEANING and DISINFECTION		

Surfaces and sample holders disinfected		
System free from odors or unusual noise		
Clean glass lid with water-degreasing detergent (also look for manufacturer's guideline)		
Clean painted structure/ housing surface with aviation spirit - degreasing detergent (also look for manufacturer's guideline)		
Clean steel parts with detergent (for steel) (also look for manufacturer's guideline)		
Clean aluminium parts with detergent - for aluminium (also look for manufacturer's guideline)		
Clean tank with water and descaling product (as per manufacturer's recommendation)		
Clean and wipe touchscreen / display with clean cloth		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 9.2 Bilirubinometer

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Check battery level		
Rechargeable cable output		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
All keypads functional		
All indicators functional		
Reagents not expired and stored properly		
Additional (if any)		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		
Display screen		
Printer functional (if any)		
Check printer paper		
CLEANING and DISINFECTION		
Wipe the bilirubinometer with 70% alcohol using gauze (also look for manufacturer's guideline))		
System free from odors or unusual noise		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

### 9.3 Binocular Microscope

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	Lenses Cleaning Paper

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Power cable, plugs, and connectors secure		
Fuses		
Strain Reliefs		
Safety switch		
Light Filters		
Controls / Switches		
All accessories present		
Pest Infestation		
FUNCTIONAL TESTING		
Power ON/OFF		
Check and change lamp if needed		
Check the light intensity controller		
Check the mechanical movement of stage		
Check specimen holder		
DISPLAY AND INTERFACE		
Keypad		
Display screen (if available)		
Printer (if any)		
CLEANING and DISINFECTION		

Clean surface around microscope, Keep microscope away from window or dusty site, Always cover microscope when not in use.		
Clean the eyepiece lens with lens cleaning paper and lens cleaning solution recommended by the manufacturer		
Clean the objective lens with lens cleaning paper, lint free swab and lens cleaning solution recommended by the manufacturer.		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 $\mu$ A	
Leakage current patient leads acc. to IEC 60601	<100 $\mu$ A	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 9.4 Biochemistry Analyzer (Fully Automated)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	
TDS Meter	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Visible damage (cracks, loose parts, wear)		
De-ionized water level		
Check TDS of deionized water		
Reagent Tray and Reaction Tray Temperature		
Labels/Safety Sticker		
Fuses		
Power cable, plugs, and connectors secure		
Hinges, doors, and access panels functional		
Leakage from tubes, sample and reagent probe		
Leakage from laundry probe (if present)		
Water spillage from reaction tray		
Water spillage from probe wash position		
Waste leakage form machine due to waste line blockage		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Switch on and check basic function		
Initialize pass		
QC Pass		
Liquid level sensing of reagent and sample probe		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		
Display screen		



<b>OPTICAL AND PHOTOMETRIC</b>		
Photometer status check		
Check and change lamp (if needed)		
Cell blank status check		
<b>REAGENT MANAGEMENT</b>		
Reagents stored properly (expiry dates checked)		
Reagent levels monitored		
Check reagent barcode		
<b>CLEANING and DISINFECTION</b>		
Run probe and tube cleaning from the system		
External surfaces disinfected		
Sample and reagent probe cleaning externally		
Clean stirrer paddle (if available)		
Waste containers emptied and clean		
Check and change external tubing of distilled water can, cleaning solution can and waste bottle can from machine (if needed)		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 9.5 Biochemistry Analyzer (Semi-Automated)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Visible damage (cracks, loose parts, wear)		
Incubation Temperature		
Labels/Safety Sticker		
Power cable, plugs, and connectors secure		
Fuses		
Overheating or unusual noise		
Check leakage from aspiration tube		
Check proper if volume of sample is aspirated by the machine		
Pest Infestation		
Strain Relief		
Controls/Switches		
Check and replace peristaltic pump tube		
FUNCTIONAL TESTING		
Power ON/OFF		
Switch on and check basic function		
Initialize pass		
Check photometer status and note down the gain value of lamp in every wavelength		
Replace lamp (if required/as per manufacturer guideline)		
Pump calibration status		
QC Pass		
DISPLAY AND INTERFACE		

Touchscreens/ buttons		
Display screen		
Printer (if any)		
<b>REAGENT MANAGEMENT</b>		
Reagents stored properly (expiry dates checked)		
<b>CLEANING and DISINFECTION</b>		
Internal and external surfaces wiped and disinfected		
Waste containers emptied and clean		
Clean flowcell with manufacturer's recommended wash solution		
Waste containers emptied and clean		
Sample spillage or residue around machine		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 9.6 Biosafety Cabinet

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Power cable, plugs, and connectors secure		
Controls/Switches/Fuses		
Check downflow velocity from the cabinet		
Check inflow velocity from the cabinet		
Check proper functioning of indicators		
Pest Infestation		
Strain Relief		
Door, Chamber/Tray		
Door alignment/gasket, seal		
FUNCTIONAL TESTING		
Power ON/OFF		
Check proper functioning of switches		
Check UV light		
Check Fluorescent light		
Check UV interlock		
Perform smoke flow test		
Check sash height alarm		
DISPLAY AND INTERFACE		
Keypad		

Display screen (if available)		
Printer (if any)		
<b>CLEANING and DISINFECTION</b>		
Remove work surface panel and clean the negative pressure tray		
Spray all stationary and removable internal components of the hood with surface disinfectant, such as screens and plenum.		
Spray sterile ethanol on clean , lint free paper/cloth and wipe hood		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## 9.7 CD4 counter

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Power cables, connectors, and wires for wear/damage		
Sample holder/cartridge tray clean and undamaged		
Controls/Switches/Fuse		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Optical sensors clean and aligned		
Light source (laser/LED) functioning correctly		
Reagent tubing and connections leak-free		
Sample flow consistent and obstruction-free		
Calibration with standard/control samples		
Additional (if any)		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		
Display screen		
Printer (if any)		
REAGENTS AND CONSUMABLES		
Reagents checked for expiry		
Proper storage of reagents and control materials		

Cuvettes, cartridges, or slides stored as per guidelines		
<b>CLEANING and DISINFECTION</b>		
Internal/External surfaces cleaned		
Internal waste container emptied (if applicable)		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 9.8 Centrifuge Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	Carbon Brushes
Tachometer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Power cable, plugs, and connectors secure		
Gasket not damaged		
Rubber feet/stabilizers in place		
Door/lid lock mechanism functions properly		
Check base level		
Controls/Switches/Fuses		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Rotor installed and seated correctly		
Buckets and tubes balanced properly during use		
Speed and time settings adjustable and accurate		
Acceleration and deceleration working properly		
Display/indicator lights functioning correctly		
Safety interlock prevents opening during spin		
Additional (if any)		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		



Check latch mechanism, lid latch and emergency release		
Check the lid spring, gas springs and lid shaft		
Check the motor and the motor shaft		
Check the motor suspension		
Check the imbalance detection		
Check the motor fan, device fan and ventilation slots		
Display screen		
<b>CLEANING and DISINFECTION</b>		
Internal and external surfaces wiped and disinfected		
Air vents dust-free		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## 9.9 Coagulation Analyzer

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Fuses		
Power cable, plugs, and connectors secure		
Pest Infestation		
Indicator/Display		
Strain Relief		
<b>FUNCTIONAL TESTING</b>		
Power ON/OFF		
Sample loading and rotor mechanism operational		
Reagent loading system working		
Pipetting system accurate		
Mixing and incubation system functional		
End-point and clot detection systems working correctly		
Test results print/display correctly		
Reagent blank and system check performed		
Reagents not expired and stored properly		
Additional (if any)		
<b>DISPLAY AND INTERFACE</b>		
Touchscreens/ buttons		
Display screen		
Printer (if any)		

<b>CLEANING and DISINFECTION</b>		
Surfaces and sample holders disinfected		
System free from odors or unusual noise		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## 9.10 Colorimeter

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Power cable and plug in good condition		
Cuvette holder intact and clean		
Controls/Switches		
Pest Infestation		
Indicators/Display		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Light source (lamp/LED) working properly		
Optical filters clean and not damaged		
Lens and light path free of dust and obstruction		
Blank reading stable		
Standard solution gives expected absorbance		
Verified with standard solutions		
Additional (if any)		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		
Display screen		
Printer (if any)		
SOFTWARE AND FIRMWARE		

Software		
<b>CLEANING and DISINFECTION</b>		
Internal/External surfaces cleaned		
Cuvettes cleaned and stored properly		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 9.11 Cyto Centrifuge Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Power cable, plugs, and connectors secure		
Gasket not damaged		
Rubber feet/stabilizers in place		
Door/lid lock mechanism functions properly		
Machine is situated in flat surface		
Pest Infestation		
Strain Relief		
Controls/Switches/Fuses		
FUNCTIONAL TESTING		
Power ON/OFF		
Rotor installed and seated correctly		
Buckets and tubes balanced properly during use		
Keypads functional		
Speed and time settings adjustable and accurate		
Acceleration and deceleration working properly		
Display/indicator lights functioning correctly		
Safety interlock prevents opening during spin		
Speed of the centrifuge is as mentioned in display		

Check latch mechanism, lid latch and emergency release		
Check the lid spring, gas springs and lid shaft		
Check the motor and the motor shaft		
Check the motor suspension		
Check the imbalance detection		
Check the motor fan, device fan and ventilation slots		
<b>DISPLAY AND INTERFACE</b>		
Touchscreens/ buttons		
Display screen		
Printer (if any)		
<b>CLEANING and DISINFECTION</b>		
Wipe and disinfect external surfaces of the machine		
Wipe and disinfect rotor and internal of the machine		
Air vents dust-free		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 9.12 Deep Freezer

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Fuses		
Power cable, plugs, and connectors secure		
Unusual noise/vibration or heating		
Inspect temperature daily and note		
Inspect water accumulation at the bottom of the appliance, if present wipe with dry cloth		
Inspect the lid gasket sealing is tight to frame when the lid is closed		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Initialization of machine passes		
QC pass (if needed)		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		
Display screen		
Printer (if any)		
CLEANING and DISINFECTION		
Clean the grille on side of freezer		



Clean compartment with lukewarm water and mild detergent		
Ringe with clean water and dry		
Clean exterior part of freezer with lukewarm water and mild detergent		
Ringe with clean water and dry		
Clean gasket around the lid		
Clean filters		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

### 9.13 Dry Bath Incubator

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Fuses		
Power cable, plugs, and connectors secure		
Both main and heating indicator works properly		
Pest Infestation		
Door alignment/gasket, seal		
Controls/Switches		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Heater functional		
Temperature uniform across the bath		
Thermostat/temperature control accurate		
Over-temperature cut-off works (if applicable)		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		
Display screen		
Printer (if any)		
CLEANING and DISINFECTION		
Clean external part of the incubator		

Clean internal part of test tube holder		
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QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 9.14 Electrolyte Analyzer

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Power cables, connectors, and wires for wear/damage		
Reagent pack properly intact (if present)		
Electrode connectors secure		
Controls/Switches/Fuses		
Pest Infestation		
Indicators/Display		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Sample and reagent tubing checked for clogs/cracks		
Initialization pass		
Internal pumps functional and pump test pass		
Reagent Calibration Pass and reagent slope value noted		
QC pass		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		
Display screen		
Printer (if any)		
REAGENTS AND CONSUMABLES		
Reagents checked for expiry and storage condition		

Electrolyte standards and cleaning solution available		
Waste container emptied (if present)		
<b>CLEANING and DISINFECTION</b>		
Internal/External surfaces cleaned		
Daily cleaning cycles performed		
Probe cleaned externally		
Probe and tubing flushed and disinfected		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## 9.15 Electrophoresis Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Power cable, plugs, and connectors secure		
Fuses		
Inspect for the gel residues on the glass plate or within the instrument		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Initialize pass		
QC pass		
DISPLAY AND INTERFACE		
Keypad		
Display screen (if available)		
Printer (if any)		
CLEANING and DISINFECTION		
Clean the surrounding of the machine.		
Clean the apparatus using water and a mild soap or detergent - dry with a soft tissue or cloth (Avoid using abrasive cleaners and rough clothes or brushes)		

Grease and adhesive from the sealing tape may be removed by gently wiping with hexane or paraffin		
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QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 9.16 Extraction Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Power cable, plugs, and connectors secure		
Fuses		
Check motor function and axis calibration		
Check air-tight status of piston units		
Check and change UV light (annually or as instructed by manufacturer's)		
Pest Infestation		
Strain Relief		
Indicators/Display		
FUNCTIONAL TESTING		
Power ON/OFF		
Initialize pass		
QC pass		
DISPLAY AND INTERFACE		
Keypad		
Display screen (if available)		
Printer (if any)		
CLEANING and DISINFECTION		
Clean the surrounding of the machine.		



Clean the sample tray with a soft paper tissue or soft cloth		
Clean instrument body by removing dust and specks gently with a dry, soft cloth		
Grease ball screws if required		
Clean piston		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## 9.17 Flow Cytometer

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Power cables, connectors, and wires for wear/damage		
Sample probe, tray, and holders intact		
Labels/Safety Sticker		
Strain Reliefs		
Controls / Switches/ Indicators/ Fuses		
Inspect sample injection port- Ensure it is clean and straight		
Inspect for reagent and sample spillage		
Observe for smooth movement on up/down strokes of sample syringe		
Inspect for leakage from the instrument		
Pest infestation		
FUNCTIONAL CHECK		
Power ON/OFF		
Pumps, valves, and mixers operational		
Background check performed		
QC Check		
Check the proper functioning of all pumps and valves from the system		
Check proper functioning of sample tray movement		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		

Display screen		
Printer (if any)		
<b>REAGENTS AND CONSUMABLES</b>		
Check fluid levels - Empty waste and refill fluids as needed		
Check reagent and sensor lines		
Check waste sensor		
<b>CLEANING and DISINFECTION</b>		
Clean external surface of the instrument		
Probe cleaning externally (wipe)		
Probe cleaning using probe cleaner		
Run daily cleaning cycle		
Run weekly cleaning cycle		
Deep clean if required		
For optical filter , use compressed air or a bulb blower to gently blow away the dust (if needed)		
Perform System Decontamination (as suggested by the manufacturers)		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		

Approved By:

## 9.18 GeneXpert

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	Disposable Gloves
Optical Brush	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Fuses		
Power cable, plugs, and connectors secure		
No unusual noise or heating		
No used cartridge inside machine		
Controls/Switches		
Indicators/Display		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Initialization of machine passes		
QC pass (if needed)		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		
Display screen		
Printer (if any)		
CLEANING and DISINFECTION		
Clean work area with 70% ethanol		
Discard used cartridge		
Disinfect instrument surfaces		

Disinfect cartridge bay interior		
Immediately clean cartridge bay interior		
Disinfect plunger rod (dissolved in lint free paper)		
Clean optical part with optical brush carefully		
Clean fan filter (If needed wash with soap water, completely let it dry and place it at the position)		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 9.19 Hematology Analyzer

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Power cables, connectors, and wires for wear/damage		
Sample probe, tray, and holders intact		
Sample and reagent tubing clear and unclogged		
Leaks or air bubbles in tubing		
Pest infestation		
Strain Relief		
Controls/Switches/Fuse		
Indicators/Display		
FUNCTIONAL CHECK		
Power ON/OFF		
Pumps, valves, and mixers operational		
Background check performed		
Blank Check		
QC Check		
Check the proper functioning of all pumps and valves from the system		
Check proper functioning of sample tray movement (if present)		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		
Display screen		
Printer (if any)		

<b>REAGENTS AND CONSUMABLES</b>		
Reagents checked for expiry and storage condition		
Check expiry date of QC		
Cleaning and diluent level		
Lyse level		
<b>CLEANING and DISINFECTION</b>		
External surfaces cleaned		
Probe cleaning externally (wipe)		
Probe cleaning using probe cleaner		
Run daily cleaning cycle		
Run weekly cleaning cycle		
Hard cleaning (if needed)		
Change filter (if present)		
Clean incubation bath (if present, if possible, if needed)		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 $\mu$ A	
Leakage current patient leads acc. to IEC 60601	<100 $\mu$ A	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 9.20 High Performance Liquid Chromatography (HPLC Analyzer)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Fuses		
Power cable, plugs, and connectors secure		
No unusual noise or heating		
Check waste bottle is empty		
Check and replace reagent bottles filters if needed		
Controls/Switches		
Pest Infestation		
Indicators/Display		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Initialization of machine passes		
QC pass (if needed)		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		
Display screen		
Printer (if any)		
CLEANING and DISINFECTION		
Surfaces and sample holders disinfected		



No leftover reagent spills or contamination		
Perform a cleaning cycle procedure from system (every end of the day)		
Sample probe cleaning		
Enzymatic cleaning		
Hot rinse (or high and low pressure cleaning) if required		
Change kit and column (as per manufacturer guideline)		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 9.21 Hot Air Oven

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Power cable, plugs, and connectors secure		
Fuses		
Strain Reliefs		
Safety switch		
Indicators		
Controls / Switches		
All accessories present		
Door, Chamber/tray		
Door alignment/gasket, seal		
Pest Infestation		
FUNCTIONAL TESTING		
Power ON/OFF		
Switch on power, check all indicators and control function		
Check proper functioning of the heater; Cross check the temperature inside the oven against temperature controller		
WORK		
Tighten loose screws and check all parts fitted tightly and correctly		
Lubricate moving door parts		

Replace any broken hinges, handles gaskets etc		
Clean any fan or ventilation inlet and outlet holes and filters		
Remove any wire with insulation damage, bare wire or sharp bends		
<b>DISPLAY AND INTERFACE</b>		
Keypad		
Display screen (if available)		
Printer (if any)		
<b>CLEANING and DISINFECTION</b>		
Remove any remaining samples and specimen from inside of the machine		
Disinfect inside and outside of machine		
Clean inside and outside of the machine		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 9.22 Immuno Assay Analyzer (CLIA)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Instrument shell and panel cleaning		
Labels/Safety Sticker		
Fuses		
Power cable, plugs, and connectors secure		
No unusual noise or heating		
Check buffer solution level		
Check waste bottle emptied		
Check leakage form magnetic separation dispensing probe		
Check and replace wash buffer filter (if needed)		
Pest Infestation		
Strain Relief		
Controls/Switches		
Indicators/Display		
FUNCTIONAL TESTING		
Power ON/OFF		
Initialization of machine passes		
Liquid level sensing of sample or reagent probe		
QC pass		
DISPLAY AND INTERFACE		

Touchscreens/ buttons		
Display screen		
Printer (if any)		
<b>CLEANING and DISINFECTION</b>		
Surfaces and sample holders disinfected		
No leftover reagent spills or contamination		
Washer nozzles clean and not clogged		
Clean probe externally (wipe)		
Empty and clean solid waste tray		
Empty and clean biohazard waste can		
Clean level sensor of biohazard waste can and buffer solution can		
Wipe magnetic separation aspiration and dispensing probe (if needed)		
Reagent tray cleaning		
Sample tray cleaning		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 9.23 Immuno Assay Analyzer (ELISA-Reader)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Fuses		
Power cable, plugs, and connectors secure		
Unusual noise or heating		
Movement of plate during reading is accurate		
Controls/Switches		
Pest Infestation		
Indicators/Display		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Initialization pass		
Photometer status check and note down the gain values for each wavelength		
Replace Lamp (if required)		
Optical filter integrity (wavelengths)		
Optical path clean and aligned		
Plate loader operates smoothly		
Blank, positive, and negative controls within expected ranges		
Additional (if any)		

<b>DISPLAY AND INTERFACE</b>		
Touchscreens/ buttons		
Display screen		
Printer (if any)		
<b>CLEANING and DISINFECTION</b>		
Clean and disinfect external cabinet		
Clean dust form display using dry cloth		
Clean sample plate tray		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 9.24 Immuno Assay Analyzer (ELISA-Washer)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Fuses		
Power cable, plugs, and connectors secure		
Unusual noise or heating		
Movement of plate during washing is accurate		
Check aspirate height		
Check dispense height		
Check Leakage from manifolds		
Check reagents and insure empty waste bottle		
Tighten the waste bottle cap		
Plate loader operates smoothly		
Check tubes connections intact		
Check and replace tubing (if required)		
Pest Infestation		
Strain Relief		
Controls/Switches		
Indicators/Display		
<b>FUNCTIONAL TESTING</b>		
Power ON/OFF		
Initialization pass		



Pump and valve check from the system		
<b>DISPLAY AND INTERFACE</b>		
Touchscreens/ buttons		
Display screen		
Printer (if any)		
<b>CLEANING and DISINFECTION</b>		
Clean and disinfect external cabinet		
Clean dust form display using dry cloth		
Clean sample plate tray		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 9.25 Immuno Assay Analyzer (FIA)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Instrument shell and panel cleaning		
Labels/Safety Sticker		
Fuses		
Power cable, plugs, and connectors secure		
Unusual noise or heating		
Smooth operation of cartridge loading platform		
Check Temperature status		
Check Battery Level		
Controls/Switches		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Initialization of machine passes		
QC pass		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		
Display screen		
Printer (if any)		
CLEANING and DISINFECTION		

Clean the surface of the analyzer using clean and dry cloth		
Clean LCD screen/display of the analyzer using clean and dry cloth		
Clean cartridge loading platform with cotton soaked in distilled water or soft wet paper.		
Disinfect cartridge loading platform (as per manufacturer guideline)		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 $\mu$ A	
Leakage current patient leads acc. to IEC 60601	<100 $\mu$ A	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 9.26 Immuno Assay Analyzer (Fully Automated - ELISA)

PREVENTIVE MAINTENANCE (PM) CHECKLIST		
Hospital Name:	Inventory Number:	
Make/Model:	Manufacturer:	
PM Frequency:	Date of PM:	
Serial No. :	Next PM:	
<b>TEST APPARATUS</b>	<b>SPARES</b>	
Multimeter	Fuses	
Electrical Safety Analyzer		
<b>QUALITATIVE TEST</b>		
<b>VISUAL INSPECTION</b>	√ / X	<b>Action needed/Action taken</b>
Visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Power cable, plugs, and connectors secure		
Optical path clean and aligned		
Plate loader operates smoothly		
Movement of plate during reading is accurate		
Aspiration and dispensing functioning correctly		
Leakage from manifolds		
Manifold height correct		
Leakage from tubes		
Waste and wash bottles positioned correctly		
Controls/Switches/Fuses		
Indicators/Display		
Pest Infestation		
Strain Relief		
<b>FUNCTIONAL TESTING</b>		
Power ON/OFF		
Photometer check and note down gain values for all the wavelengths		
Replace lamp (if needed)		
Perform washer prime and check the flow of liquid from all the tubes		
Optical filter integrity (wavelengths)		
Blank, positive, negative controls within expected range		
Additional (if any)		

<b>DISPLAY AND INTERFACE</b>		
Touchscreens/ buttons		
Display screen		
<b>REAGENT AND CONSUMABLES</b>		
Reagent level check		
Reagent stored properly		
<b>CLEANING and DISINFECTION</b>		
Surfaces and sample holders disinfected		
Clean sample plate tray		
Washer nozzles clean and not clogged		
Clean de-ionized water bottle		
Empty and clean the disposable tip container/ solid waste container		
Empty and clean bio-hazardous waste bottle		
Clean space around the machine, remove any unwanted samples		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 $\mu$ A	
Leakage current patient leads acc. to IEC 60601	<100 $\mu$ A	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		

Approved By:

## 9.27 Incubator

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Battery/Charger		
Power cable, plugs, and connectors secure		
Incubator walls and hood free from cracks or damage		
Wheels and brakes functional		
Access parts, doors and hinges working properly		
Mount/Fasteners		
Pest Infestation		
Strain Relief		
Controls/Switches/Fuse		
Indicators/Display		
Door, Chamber/Tray		
Door alignment/gasket, seal		
FUNCTIONAL TESTING		
Power ON/OFF		
Check		
Switch on power, check all indicators and control function		
Check proper functioning of the heater; Cross check the temperature inside the incubator against temperature controller		
WORK		

Tighten loose screws and check all parts fitted tightly and correctly		
Lubricate moving door parts		
Replace any broken hinges, handles gaskets etc		
Clean any fan or ventilation inlet and outlet holes and filters		
Remove any wire with insulation damage, bare wire or sharp bends		
<b>DISPLAY AND INTERFACE</b>		
Keypad		
Display screen (if available)		
Printer (if any)		
<b>CLEANING and DISINFECTION</b>		
Remove any remaining samples and specimen from the incubator		
Disinfect inside and outside of machine		
Clean inside and outside of the machine		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

<b>REMARKS</b>

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 9.28 Microtome

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Power cable, plugs, and connectors secure		
Fuses		
Strain Reliefs		
Safety switch		
Indicators		
Controls / Switches		
All accessories present		
Check blade position		
Pest Infestation		
FUNCTIONAL TESTING		
Power ON/OFF		
Switch on power, check all indicators and control function		
WORK		
Disassemble the blade holder before cleaning		
Lock handwheel before cleaning		
DISPLAY AND INTERFACE		
Keypad		
Display screen (if available)		



Printer (if any)		
<b>CLEANING and DISINFECTION</b>		
Clean exterior part of the instrument (Do not use solvent containing acetone and benzene)		
Wipe the instrument using dry fabric with little detergent to clean surface of the instrument		
Remove slice waste		
Unload subassembly of blade holder and remove dirty paraffin from clamping part between disposable blade and blade holder carefully		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## 9.29 PCR Cabinet

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Power cable, plugs, and connectors secure		
Fuses		
Check proper functioning of indicators		
Controls/Switches		
Pest Infestation		
Sample trays aligned and move smoothly		
Door, Chamber/Tray		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Check proper functioning of indicators/Display		
Check proper functioning of switches		
Check UV light		
Check UV light lifetime		
Check Fluorescent light		
Check UV interlock		
Perform smoke flow test		
Check sash height alarm		
DISPLAY AND INTERFACE		

Keypad		
Display screen (if available)		
Printer (if any)		
<b>CLEANING and DISINFECTION</b>		
Remove work surface panel and clean the negative pressure tray		
Spray all stationary and removable internal components of the hood with surface disinfectant, such as screens and plenum.		
Spray sterile ethanol on clean , lint free paper/cloth and wipe hood		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

### 9.30 PCR Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Power cable, plugs, and connectors secure		
Fuses		
Platform/tray clean and stable		
Monitor temperature		
Pest Infestation		
Strain Relief		
Controls/Switches		
FUNCTIONAL TESTING		
Power ON/OFF		
Initialize pass		
QC pass		
DISPLAY AND INTERFACE		
Keypad		
Display screen (if available)		
Printer (if any)		
CLEANING and DISINFECTION		
Clean the surrounding of the machine.		
Clean the outer lid of the machine		

Use a soft brush, damp cloth to remove the light dust from the vent		
Use soft cloth to wipe dust from the display		
Clean reaction module bay using a damp soft cloth to remove debris and spilled liquids		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 $\mu$ A	
Leakage current patient leads acc. to IEC 60601	<100 $\mu$ A	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

### 9.31 Protein Analyzer/Nephelometry

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Fuses		
Power cable, plugs, and connectors secure		
Smooth operation of cartridge loading platform		
Check Waste container/bottle level		
Check wash solution level (if available)		
Check battery level		
Check temperature		
Specimen/sample spillage near analyzer		
Controls/Switches		
Pest Infestation		
Indicators/Display		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Switch on and check basic function		
Initialize pass		
QC Pass		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		
Display screen		

Printer (if any)		
<b>REAGENT MANAGEMENT</b>		
Cartridge and reagent stored in proper temperature (as specified by manufacturer's guideline)		
<b>CLEANING and DISINFECTION</b>		
Clean the surface of the analyzer using clean and dry cloth		
Clean LCD screen/display of the analyzer using clean and dry cloth		
Clean cartridge loading platform with cotton soaked in distilled water or soft wet paper.		
Disinfect cartridge loading platform (as per manufacturer guideline)		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## 9.32 Refrigerated Centrifuge Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Power cable, plugs, and connectors secure		
Gasket not damaged		
Rubber feet/stabilizers in place		
Door/lid lock mechanism functions properly		
Machine is situated in flat surface		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Rotor installed and seated correctly		
Buckets and tubes balanced properly during use		
Keypads functional		
Speed and time settings adjustable and accurate		
Acceleration and deceleration working properly		
Display/indicator lights functioning correctly		
Safety interlock prevents opening during spin		
Speed of the centrifuge is as mentioned in display		
Check rotor bowl		
Check latch mechanism, lid latch and emergency release		
Check the lid spring, gas springs and lid shaft		



Check the motor and the motor shaft		
Check the motor suspension		
Check the imbalance detection		
Check the motor fan. device fan and ventilation slots		
Check temperature sensors		
<b>DISPLAY AND INTERFACE</b>		
Touchscreens/ buttons		
Display screen		
Printer (if any)		
<b>CLEANING and DISINFECTION</b>		
Wipe and disinfect external surfaces of the machine		
Wipe and disinfect rotor and internal of the machine		
Clean condensation water tray and the hose		
Clean and grease the lid latch		
Clean and grease the rotor bowl seal		
Air vents dust-free		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

<b>REMARKS</b>

S. No.	Performed By	Signature
1)		
2)		

Approved By:

### 9.33 Refrigerator

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	Optical Brush
	Lint Free Wipes

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Fuses		
Power cable, plugs, and connectors secure		
Unusual noise/vibration or heating		
Inspect temperature daily and note		
Check the evaporator coils and drain lines for ice buildup and blockage respectively		
Look for signs of corrosion on various parts of the units		
Make sure the drain pan is clear and the condensers are thoroughly vacuumed		
Inspect the doors for torn gaskets and the evaporator fan blades for nicks		
Verify that all fans rotate freely, quietly and securely fastened		
Check the wiring for any signs of wear or damage, and make sure all connections are secure		
Test the operation of fan cycle and defrost controls and adjust them if needed		
Look for abnormal ice patterns and verify the defrost heater amp draw against the unit data plate		
Measure the unit cooler superheat and ensure it matches your specific application		

Check the coil for the even distribution		
Pest Infestation		
Strain Relief		
<b>FUNCTIONAL TESTING</b>		
Power ON/OFF		
Initialization of machine passes		
QC pass (if needed)		
<b>DISPLAY AND INTERFACE</b>		
Touchscreens/ buttons		
Display screen		
Printer (if any)		
<b>CLEANING and DISINFECTION</b>		
Wipe down outside of freezer with soft cloth		
Clean the filter and condenser coil		
Remove ice from the gasket and doors with soft cloths		
Clean filters		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 $\mu$ A	
Leakage current patient leads acc. to IEC 60601	<100 $\mu$ A	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

<b>REMARKS</b>

S. No.	Performed By	Signature
1)		
2)		

Approved By:

### 9.34 Shaker (Mixer)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Power cable, plugs, and connectors secure		
Fuses		
Platform/tray clean and stable		
Controls/Switches		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Shaking motion smooth and even (orbital/linear)		
Speed control knob/display functions correctly		
Timer functions properly (if applicable)		
Motor and belt system checked and lubricated (if applicable)		
Carbon brush		
Vibration minimal at all speed settings		
No unusual noise or overheating during operation		
Additional (if any)		
DISPLAY AND INTERFACE		
Keypad		

Display screen (if available)		
<b>CLEANING and DISINFECTION</b>		
Internal and external surfaces wiped and disinfected		
Clean chemical or biological residue present		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

### 9.35 Tissue Processor

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES	
Multimeter	Fuses	
Electrical Safety Analyzer		
<b>QUALITATIVE TEST</b>		
<b>VISUAL INSPECTION</b>	√ / X	<b>Action needed/Action taken</b>
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Power cable, plugs, and connectors secure		
Strain Reliefs		
Controls / Switches/Indicators/ Fuses		
Check hinges		
Check filter in the retort (if present / if necessary)		
Check retort strainer for any tissue or wax debris		
Inspect paraffin levels		
Inspect reagent container fluid levels		
Check reagent bottles are fully inserted in the connection manifolds		
Inspect and empty condensate bottle (if needed)		
Check drip tray (if present)		
Pest Infestation		
<b>FUNCTIONAL TESTING</b>		
Power ON/OFF		
Switch on power, check all indicators and control function		
<b>WORK</b>		
Remove any wire with insulation damage, bare wire or sharp bends		
Lubricate reagent bottle O-rings and check for damage		
Lubricate moving door parts		

Replace any broken hinges, handles gaskets etc		
Scrape around the retorts lids and seals		
<b>DISPLAY AND INTERFACE</b>		
Keypad		
Display screen (if available)		
<b>CLEANING and DISINFECTION</b>		
Clean exterior of instrument with soft cloth and minimal amount of xylene		
Remove residual paraffin from inner surface of wax bath lid		
Clean the lids of the paraffin baths		
Clean the paraffin drip tray		
Check and clean the filter in paraffin station		
Clean retort/ retort lid seal/ retort's glass window		
Clear dust from the wax bath air vent		
Clean liquid level sensors with cleaning tool		
Clean filter in the retort		
Clean stirrer		
Clean touchscreen		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 $\mu$ A	
Leakage current patient leads acc. to IEC 60601	$\mu$ A	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

<b>REMARKS</b>

S. No.	Performed By	Signature
1)		
2)		

Approved By:

### 9.36 Urine Analyzer (Semi Automated)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Fuses		
Power cable, plugs, and connectors secure		
Smooth operation of strip loading platform		
Specimen/sample spillage near analyzer		
Controls/Switches		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Switch on and check basic function		
Initialize pass		
QC Pass		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		
Display screen		
Printer (if any)		
REAGENT MANAGEMENT		
Test Strips stored at room temperature.		
CLEANING and DISINFECTION		



Clean the surface of the analyzer using clean and dry cloth		
Clean LCD screen/display of the analyzer using clean and dry cloth		
Clean strip loading platform with cotton soaked in distilled water or soft wet paper.		
If there are urine stains in loading platform clean the loading platform with 0.1 N sodium hydroxide or as per manufacturer's suggestion (avoid calibrated slice during this procedure)		
Disinfect strip loading platform (as per manufacturer guideline)		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 9.37 Water Bath

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	
Lab Thermometer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Fuses		
Power cable, plugs, and connectors secure		
Lid (if applicable) present and fits properly		
Check for missing or damage of electrostatic paint, specially at the corners and edges		
Pest Infestation		
Strain Relief		
Controls/Switches		
FUNCTIONAL TESTING		
Power ON/OFF		
Heater functional and heats water to set temperature		
Temperature uniform across the bath		
Thermostat/temperature control accurate		
Over-temperature cut-off works (if applicable)		
Water clean and filled to appropriate level		
Additional (if any)		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		
Display screen		

Printer (if any)		
<b>CLEANING and DISINFECTION</b>		
Inner tank cleaned from deposits, algae, and residues		
Drainage system checked and functional		
Exterior wiped with appropriate cleaner		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 $\mu$ A	
Leakage current patient leads acc. to IEC 60601	$\mu$ A	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## **Module 5: Dental, ENT and Ophthalmic Equipment**

## List of Equipment

<b>10. Dental Equipment .....</b>	<b>208</b>
10.1 Dental Chair .....	209
10.2 Dental Unit, Complete .....	211
10.3 Dental X-Ray Unit .....	213
10.4 OPG Machine .....	215
<b>11. ENT Equipment .....</b>	<b>217</b>
11.1 Audiometer .....	218
11.2 BERA Machine .....	220
11.3 ENT Microscope .....	222
11.4 ENT Treatment Unit .....	224
<b>12. Ophthalmic Equipment .....</b>	<b>226</b>
12.1 AB Scan Machine .....	227
12.2 Auto Ref-Keratometer .....	229
12.3 Direct Ophthalmoscope .....	231
12.4 Green Laser .....	233
12.5 Indirect Ophthalmoscope .....	235
12.6 Lensometer .....	237
12.7 Non-Contact Tonometer .....	239
12.8 Slit Lamp .....	241

## **10. Dental Equipment**

10.1 Dental Chair .....	209
10.2 Dental Unit, Complete .....	211
10.3 Dental X-Ray Unit .....	213
10.4 OPG Machine .....	215

## 10.1 Dental Chair

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Check visible damage (cracks, wear, loose components)		
Labels/Safety Sticker		
Chair upholstery free from damage or tears		
Armrests and headrest secure and adjustable		
Foot control and hand controls functional		
Hydraulic system free of leaks (non-Motorized chair)		
Base and frame stable and secure		
Mount/Fasteners		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Chair movement (up/down, recline) smooth and functional		
Foot pedal and control panel working properly		
LED/halogen dental light operational		
Handpiece holders secure and working		
Water and air supply operational (Min 3 Bar air Pressure)		
Saliva ejector and suction system functioning		
Spittoon flush and drainage system working properly		

Hydraulic oil level and pressure checked (non-Motorized chair)		
Additional (if any)		
<b>CLEANING and DISINFECTION</b>		
Chair upholstery disinfected		
Handpieces, suction tips, and spittoon cleaned		
Foot pedal and control panel sanitized		
Storage compartments clean and organized		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:



## 10.2 Dental Unit, Complete

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis/Moving parts		
Labels/Safety Sticker		
Controls/Switches/Fuses		
Pest Infestation		
Strain Relief		
Castors/brakes/ Mount/Fasteners		
Filters		
Tubing for cracks and leaks		
Spittoon Tumbler		
Mount/Fasteners		
FUNCTIONAL TESTING		
Chair movement		
Foot control		
Brake		
Noise free operation of motor		
Curing Light		
Light intensity		
Light focus		
Tip defects		
Bulb functionality		
Hand piece		
Air and water spray		
Handpiece intact		
Check for cracks and blockage		
3-way syringe		

<b>Air/Water supply system</b>		
Air pressure (3-5 Bar)		
Water Pressure		
Drain water		
Fluid backflow		
<b>Ultrasonic Scaler</b>		
Scaler tips		
Water inlet connector		
Water Spray valve		
Water leakage		
Tip vibration Intensity and its control		
<b>Dental Air Compressor</b>		
Compressors start and stop		
No unusual noise		
Pipes, joints, fittings intact, Overload protectors, NRVs		
Oil level (if applicable)		
<b>CLEANING AND DISINFECTION</b>		
Wipe surface with non- corrosive disinfectant		
Clean clogging or mineral buildup		
Flush water lines		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	µA	
Leakage current patient leads acc. to IEC 60601	µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

<b>REMARKS</b>

S. No.	Performed By	Signature
1)		
2)		

**Approved By:**

### 10.3 Dental X-Ray Unit

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger (if Portable Unit)		
Controls/Switches/Fuses		
Power cables, connectors, and wires for wear/damage		
Articulating arm moves smoothly and locks properly		
Warning labels and control markings intact		
Proper shielding around tube head		
Mount/Fasteners		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
X-ray exposure trigger working correctly		
Timer settings accurate and responsive		
Exposure indicators functioning (visual/audible alerts)		
Proper alignment of tube head and image receptor (RVG or Phosphorus plate or IOPA)		
Arm holds position without drifting		
Digital image or film clarity verified		
Beam alignment and collimation checked		

Leakage radiation test performed		
Additional (if any)		
<b>DISPLAY AND INTERFACE</b>		
Touchscreens/ buttons		
Display screen		
Printer (if any)		
<b>CLEANING and DISINFECTION</b>		
External surfaces disinfected		
Handgrips and control surfaces cleaned		
Tube head and exposure area dust-free		
Barrier protections applied where necessary		
<b>SOFTWARE AND FIRMWARE</b>		
Software (RVG or Phosphorus plate viewer)		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 10.4 OPG Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Pest Infestation		
Strain Relief		
Castors/brakes		
Fuses		
FUNCTIONAL TESTING		
Power ON/OFF		
Self-test		
Movement tube head and arm		
Chin rest, head rest		
Exposure button		
Indicator lights		
X- ray beam collimation and alignment		
Image contrast		
Image quality		
Image storage and retrieval		
Radiation shielding		
CLEANING AND DISINFECTION		
Wipe surface with non- corrosive disinfectant		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## **11. ENT Equipment**

11.1 Audiometer.....	218
11.2 BERA Machine .....	220
11.3 ENT Microscope .....	222
11.4 ENT Treatment Unit.....	224

## 11.1 Audiometer

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger		
Controls/Switches/Fuses		
Power cables, connectors, and wires for wear/damage		
Headphones and inserts intact, no wear or damage		
Bone conduction vibrator and headband functional		
Mount/Fasteners		
Pest Infestation		
Indicators/Display		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Frequency and intensity adjustments functional		
Tone presentation buttons working properly		
Speech audiometry functions correctly		
Masking noise output verified		
Response button functional		
Frequency accuracy checked		
Output intensity levels verified		
Background noise levels within acceptable limits		
Additional (if any)		
DISPLAY AND INTERFACE		



Touchscreens/ buttons		
Display screen		
Printer		
<b>CLEANING and DISINFECTION</b>		
Headphones and ear cushions cleaned/sanitized		
Bone vibrator disinfected		
Control panel and display screen cleaned		
Storage case and cables organized		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 $\mu$ A	
Leakage current patient leads acc. to IEC 60601	<100 $\mu$ A	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 11.2 BERA Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	Lens Cleaning Paper
	Electrodes

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger		
Controls/Switches		
Power cables, connectors, and wires for wear/damage		
Mount/Fasteners		
Pest Infestation		
Indicators/Display		
Fuse		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Display screen check		
Keyboard/touchscreen check		
Stimulus generation check		
Stimulus intensity level accuracy check		
Stimulus repetition rate check		
Electrode checking		
System self test (if any)		
CLEANING and DISINFECTION		
Clean with 70% isopropyl alcohol		
Disinfect control panel and touchscreen		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed    ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

### 11.3 ENT Microscope

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	Lens Cleaning Paper
	Light Source

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger		
Controls/Switches		
Power cables, connectors, and wires for wear/damage		
Confirm proper alignment of optical parts		
Presence of all types of lenses		
Mount/Fasteners		
Pest Infestation		
Fuse		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Inspect movement of arms		
Check light intensity		
Check zoom and focus		
Check image clarity		
Verify working of magnification		
Check eyepiece and objectives adjustment		
Check all buttons and knobs		
Inspect camera (if available)		
Check connection of fiber optic cable		

Check motor movement		
Inspect footswitch		
Additional (if any)		
<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Clean lenses for any deposition		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 11.4 ENT Treatment Unit

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	Light source

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger		
Controls/Switches		
Tubings, hoses, and suction connections intact		
Power cables, connectors, and wires for wear/damage		
Headlight and light sources secured and undamaged		
Mount/Fasteners		
Pest Infestations		
Indicators/Display		
Fuse		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Suction system operates efficiently		
Otoscope light intensity is adequate		
Nasal endoscope light source and camera working		
Examination chair movement smooth and responsive		
Micromotor and drill functioning correctly		
Cautery unit operational (if any)		
Footswitch working properly		
Air pressure and suction levels tested		
Light source brightness and color consistency checked		

Endoscope optics and video display quality verified		
Temperature settings of any heating elements verified		
Additional (if any)		
<b>DISPLAY AND INTERFACE</b>		
Touchscreens/ buttons		
Display screen		
Printer (if any)		
<b>CLEANING and DISINFECTION</b>		
Handpieces and attachments disinfected		
Suction filters and tubing cleaned or replaced		
Ear, nose, and throat instruments sterilized		
Endoscope lens cleaned using proper materials		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## **12. Ophthalmic Equipment**

12.1 AB Scan Machine.....	227
12.2 Auto Ref-Keratometer.....	229
12.3 Direct Ophthalmoscope.....	231
12.4 Green Laser .....	233
12.5 Indirect Ophthalmoscope .....	235
12.6 Lensometer .....	237
12.7 Non-Contact Tonometer.....	239
12.8 Slit Lamp .....	241



## 12.1 AB Scan Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	Probe

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger		
Controls/Switches		
Fuses		
Power cables, connectors, and wires for wear/damage		
Probe connectors clean and properly attached		
Mount/Fasteners		
Pest Infestation		
Indicators/Display		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Image resolution and clarity acceptable		
A-Scan waveform displayed correctly		
B-Scan image acquisition smooth		
Gain, depth, and frequency controls working properly		
Freeze, store, and retrieve functions operational		
Emergency stop button and alarms working		
Probe movement and calibration within specifications		
Additional (if any)		
DISPLAY AND INTERFACE		

Touchscreens/ buttons		
Display screen		
Printer		
<b>CLEANING and DISINFECTION</b>		
Probes and transducers properly cleaned and disinfected		
Patient-contact surfaces sanitized		
Ultrasound gel properly stored and not expired		
Disposable accessories replaced		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 12.2 Auto Ref-Keratometer

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Controls/Switches		
Fuses		
Power cables, connectors, and wires for wear/damage		
Chin rest and forehead rest intact and adjustable		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Auto-alignment system operational		
Measurement repeatability and accuracy verified		
Patient positioning and fixation target operational		
Keratometry readings consistent and within limits		
Refractive error measurement accuracy verified		
Keratometry curvature measurements tested		
Optical alignment and focus adjustments tested		
Emergency stop button working (not needed)		
Additional (if any)		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		
Display screen		
Printer		

<b>CLEANING and DISINFECTION</b>		
Lenses and optical components cleaned carefully		
Patient-contact surfaces sanitized		
Protective covers intact and clean		
Disposable accessories replaced		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 12.3 Direct Ophthalmoscope

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	Light Source

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger		
Controls/Switches		
Handle and head securely attached		
Aperture dial moves freely and adjusts settings		
Lens selection dial rotates smoothly		
Pest Infestation		
FUNCTIONAL TESTING		
Power ON/OFF		
Light intensity adjustable and functioning properly		
Beam quality clear and focused		
All lens options provide clear vision		
Red-free, cobalt blue, and other filters operational		
Light pathway unobstructed		
Additional (if any)		
CLEANING and DISINFECTION		
Device exterior cleaned and disinfected		
Lens and optical surfaces cleaned with proper materials		
Storage case clean and protective		
Disposable accessories replaced		

QUANTITATIVE TEST		
-------------------	--	--

Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 12.4 Green Laser

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Air Filter
	Fuse, Light Source
	Laser protective Glass

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger		
Controls/Switches		
Fuses		
Power cables, connectors, and wires for wear/damage		
Chin rest and forehead rest intact in proper position.		
Pest Infestation		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Beam quality functional alignment		
Laser acquisition parameters check		
Laser output verification check		
Self-checks (if any)		
Check the bulb of the slit lamp attached		
DISPLAY AND INTERFACE		
Check whether there is screen distortion or not		
Check for any error messages		
Control buttons test		
CLEANING and DISINFECTION		
Laser handpiece and optical components cleaned		

Patient-contact surfaces sanitized		
Filters and vents cleaned or replaced		
Protective eyewear clean and available		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:



## 12.5 Indirect Ophthalmoscope

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	Light Source

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger		
Controls/Switches		
Headband and adjustment straps secure		
Optical components free from scratches or dust		
Light source secure and properly aligned		
Cables and connections secure and undamaged		
Pest Infestation		
Indicators/Display		
Fuses		
Strain Relief		
<b>FUNCTIONAL TESTING</b>		
Power ON/OFF		
Light intensity adjustable and functioning properly		
Beam quality clear, bright and focused		
Optical alignment correct for proper visualization		
Filters (red-free, cobalt blue, etc.) operational		
Lens tilt mechanism working smoothly		
Light pathway unobstructed		
Stereopsis and depth perception unaffected (Stereoscopic View Check)		

Magnification adjustments functional		
Additional (if any)		
<b>CLEANING and DISINFECTION</b>		
Device exterior cleaned and disinfected		
Lens and optical surfaces cleaned with proper materials		
Storage case clean and protective		
Headband padding sanitized or replaced if necessary		
Disposable accessories replaced		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## 12.6 Lensometer

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	Light Source

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger		
Controls/Switches		
Lens holder and nose cone intact		
Cables and connections secure and undamaged		
Pest Infestation		
Indicators/Display		
Fuse		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Lens marking system operational		
Measurement repeatability and accuracy verified		
Sphere, cylinder, and axis readings correct		
Prism measurement accurate and consistent		
PD (Pupillary Distance) measurement functional		
UV and blue light measurement (if applicable) tested		
Optical alignment verified		
Lens graticule clear and correctly aligned		
Additional (if any)		
CLEANING and DISINFECTION		
Lenses and optical components cleaned carefully		

Lens holder and external surfaces disinfected		
Protective covers clean and in place		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	μA	
Leakage current patient leads acc. to IEC 60601	μA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 12.7 Non-Contact Tonometer

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger		
Controls/Switches		
Fuses		
Power cables, connectors, and wires for wear/damage		
Air nozzle and tubing clean and undamaged		
Chin rest and forehead rest intact and adjustable		
Pest Infestation		
Indicators/Display		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Air puff mechanism functional and properly aligned		
Auto-alignment system operational		
Measurement repeatability and accuracy verified		
Patient positioning and fixation target operational		
Intraocular pressure (IOP) accuracy confirmed(11-22 mmHg)		
Emergency stop button working(not needed)		
Additional (if any)		
DISPLAY AND INTERFACE		
Touchscreens/ buttons		

Display screen		
Printer		
<b>CLEANING and DISINFECTION</b>		
Air nozzle and surrounding area cleaned and disinfected		
Patient-contact surfaces sanitized		
Protective covers intact and clean		
Disposable accessories replaced		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 12.8 Slit Lamp

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuse
Luxmeter	Bulb/ LED
Lens cleaning kit	
Measuring tape to measure slit width and height	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Labels/Safety Sticker		
Battery/Charger		
Controls/Switches		
Locking Mechanism		
Check for cracks if any		
Pest Infestation		
Fuses		
Strain Relief		
Check power cable if any damage is seen		
FUNCTIONAL TESTING		
Power ON/OFF		
Light intensity adjustable and functioning properly		
Beam quality clear, bright and focused		
Optical alignment correct for proper visualization		
Check Filters		
Check Applanation Tonometer		
Check Illuminatio		
CLEANING and DISINFECTION		
Device exterior cleaned and disinfected		

Lens and optical surfaces cleaned with proper materials		
Storage case clean and protective		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 $\mu$ A	
Leakage current patient leads acc. to IEC 60601	$\mu$ A	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:



## **Module 6: Imaging and Physiotherapy Equipment**

## List of Equipment

<b>13. Imaging Equipment .....</b>	<b>245</b>
13.1 C-Arm Machine.....	246
13.2 CR Printer.....	248
13.3 CT Scan .....	250
13.4 DR System (Flat Panel Detector) .....	252
13.5 ECHO/ Ultrasound Machine .....	254
13.6 Mammography System .....	256
13.7 Portable X-ray Machine .....	258
13.8 Stationary X-ray Machine .....	260
13.9 X-ray Cassette Reader .....	262
<b>14. Physiotherapy Equipment.....</b>	<b>264</b>
14.1 Continuous Passive Motion (CPM).....	265
14.2 Diathermy .....	267
14.3 Interferential therapy Machine (IFT) .....	269
14.4 Muscle Stimulator .....	271
14.5 Traction Unit .....	273
14.6 Transcutaneous Electrical Nerve Stimulation (TENS) .....	275
14.7 Treadmill Test Machine .....	277
14.8 Wax Bath.....	279

## **13. Imaging Equipment**

13.1 C-Arm Machine.....	246
13.2 CR Printer.....	248
13.3 CT Scan .....	250
13.4 DR System (Flat Panel Detector).....	252
13.5 ECHO/ Ultrasound Machine .....	254
13.6 Mammography System .....	256
13.7 Portable X-ray Machine .....	258
13.8 Stationary X-ray Machine .....	260
13.9 X-ray Cassette Reader .....	262

## 13.1 C-Arm Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES	
Multimeter	Fuses	
Electrical Safety Analyzer		
<b>QUALITATIVE TEST</b>		
<b>VISUAL INSPECTION</b>	√ / X	<b>Action needed/Action taken</b>
Casing/Housing/Chassis		
Cables		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Locks/Brakes		
Pest Infestation		
Backup power		
Physical damage		
Indicators/Display		
Fuse		
Fittings/Connectors		
Strain Relief		
Wheels		
<b>FUNCTIONAL TESTING</b>		
Start up / Boot up		
Network connectivity		
Hand and paddle switch		
Front and rear drive		
Emergency Stop buttons		
Rotation from 0° to 360°		
All movements check		
Vertical movement check		
Locks and brakes		
Exposure switch (Fluoro and High Level Fluoro)		

Check storage space		
II Monitor		
II Memory device		
Battery Check		
Lubrication of moveable parts		
Optional feature check (if available)		
Check Audible / visible alarm		
Check Mode test		
Check Movement test		
Check interconnection cable		
<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Clean Laser optics		
CPU		
Filter		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	
Input Voltage		
mAs	± 10 %	
Exposure Reproducibility	±10 %	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

<b>REMARKS</b>

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 13.2 CR Printer

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Pest Infestation		
Grounding		
Backup power		
Physical damage		
Indicators/Display		
Cable		
Fuse		
Strain Relief		
Fittings/Connectors		
Environmental Control		
Temperature (18-25°C)		
Humidity (between 40–60%)		
FUNCTIONAL TESTING		
Printing/Checking Conveyance/Checking Images		
Checking the Interlock Function		
Checking the Fan Operation		
Final Operation Checks/Checking Images		
Setting Date and Time		

Connectivity of PACS/RIS		
<b>CLEANING and DISINFECTION</b>		
Cleaning/Replacing the Cleaning Roller		
Cleaning the Air Filter		
Cleaning the Removal Unit, Cleaning Inside the Equipment		
Cleaning the Rubber Belt, Cleaning the Sub-scanning Conveyance Roller		
Cleaning the Density Measurement Section		
Cleaning the Heat development Unit		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	
Input Voltage		

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

### 13.3 CT Scan

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Grounding		
UPS and Battery status check		
Pest Infestation		
Indicators/Display		
Cables		
Fuse		
Fittings/Connectors		
Strain Relief		
FUNCTIONAL TESTING		
Line to Line voltage check		
Image Quality Assessment		
Beam Alignment and Collimation		
Table Movement and Positioning Accuracy		
X-ray On indication		
Self-test		
Dose Monitoring		
Radiation Shielding		
Temperature and Humidity Sensors		
Emergency Stop		
Gantry Rotation		



<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Clean dust filters		
Gantry Fans and Filters		
Console CPU Fans and Filters		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	
Input Voltage		
Earthing	<1 Ohm	
Contrast and Density Calibration	within ±2%	
Tube Output and Stability	within ±5% over a 24-hour period	
CT Image Uniformity	within ±3 Hounsfield Unit	
Noise Level Analysis	below 1%	
Patient Dose Calculation	within ±2%	
<b>Note: To be performed under supervision of company representative</b>		

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

<b>REMARKS</b>

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

### 13.4 DR System (Flat Panel Detector)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Physical damage		
Backup power / UPS (if available)		
Controls/Switches/Fuse		
Pest Infestation		
Strain Relief		
Indicators/Display		
Cables		
Fittings/Connectors		
Environmental Control		
Temperature (18-30°C)		
Humidity (between 20–75%)		
FUNCTIONAL TESTING		
Start up		
Motion of detector		
Battery Status		
Resolution of image		
Contrast of image		
Detector deviation		
Detector Calibration(every 6 months)		

Check communication wire of detector (if applicable)		
<b>CLEANING and DISINFECTION</b>		
Surface Cleaning		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	
Input Voltage		

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

### 13.5 ECHO/ Ultrasound Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Probes		
Pest Infestation		
Grounding		
Backup power		
Physical damage		
Wheels, Locks and brakes (if applicable)		
Covers and shielding		
Indicators/Display		
Cables		
Fuse		
Fittings/Connectors		
Strain Relief		
FUNCTIONAL TESTING		
Power up / Boot up		
Transducer / Probe		
Monitors		
Touch Panel (if available)		
Control Panel buttons		

Keypad		
Trackball		
Footswitch		
Audible signals		
Modes test		
Basic Function test		
Patient data space		
Printer function		
ECG function check for echocardiography		
<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Clean dust filters		
Monitor, Console and Probe Holder		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	
Input Voltage		

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

<b>REMARKS</b>

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## 13.6 Mammography System

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
X-ray tube		
Collimator		
Emergency stop button		
Footswitch/ paddle and hand switch		
Pest Infestation		
Grounding		
Backup power		
Physical damage		
Indicators/Display		
Cables		
Fuse		
Fittings/Connectors		
Strain Relief		
FUNCTIONAL TESTING		
Power ON		
Detector		
Display / Control Panel buttons		
Movement (Column Up/Down)		
Collimator and Light Field		

Interlocks and balance (counterweight)		
Arm Rotation and brakes		
Compression mechanism		
Compression Release check		
Lead Glass shield		
Artifacts, noise on images		
Contrast and resolution details		
KVp, mAs		
Exposure switch and compressor release switch		
Emergency stop button		
<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Clean air vent and fans		
Cassette roller		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	
Input Voltage		
KVP	±5%	
mAs	±10%	
Compression force	11-20kg	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

<b>REMARKS</b>

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

### 13.7 Portable X-ray Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Pest Infestation		
Cables / Cable Holder		
Film Cassette holder		
Control panel indicator		
Radiation shielding		
Exposure switch		
Wheels		
Any loose screws		
Locks/Brakes (if applicable)		
Exposure switch holder		
Collimator mount inspection		
Fuse		
Fittings/Connectors		
Strain Relief		
FUNCTIONAL TESTING		
mA, kv, exposure time selection		
Display (kV, mA, exposure time)		
Collimator test adjustment		



Arm movement and balance		
Exposure Switch (Ready, Exposure and Exposure cut off)		
Rotor sound while pressing Ready on Exposure Switch		
<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Dust and clean X-ray tube housing, break assembly, collimator, and cassette holder		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 $\mu$ A	
Leakage current patient leads acc. to IEC 60601	<100 $\mu$ A	
Input Voltage		
kvp	$\pm 5\%$	
mA	$\pm 10\%$	
Exposure accuracy	$\pm 5\%$	
Collimator accuracy from source to image distance	2%	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

### 13.8 Stationary X-ray Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES	
Multimeter	Fuses	
Electrical Safety Analyzer		
<b>QUALITATIVE TEST</b>		
<b>VISUAL INSPECTION</b>	√ / X	<b>Action needed/Action taken</b>
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Pest Infestation		
HT Cables / Cable Holder		
System cables and connections		
Film Cassette holder		
Control panel indicator		
Radiation shielding		
Exposure switch		
Any loose screws		
Locks/Brakes (if applicable)		
Lead Glass, Door for radiation safety		
Fuse		
Strain Relief		
Check for bearings, tracks, wires for counter balance, movements, grid		
<b>FUNCTIONAL TESTING</b>		
mA, kv, exposure time selection/ switch		
Display (kV, mA, exposure time)		
Collimator test adjustment		
Mode test		
Examination table movements and locks (Manual/Electromagnetic)		

Exposure Switch (Ready, Exposure and Exposure cut off)		
Rotor sound while pressing Ready on Exposure Switch		
Tube and Tube stand movement and balance (Manual/Electromagnetic)		
Chest stand movement and lock (Manual/Electromagnetic)		
Grid		
<b>CLEANING and DISINFECTION</b>		
Wipe external surface		
Dust and clean X-ray tube housing, break assembly, collimator, PDU and cassette holder		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	
Input Voltage		
kvp	± 5%	
mA	±10%	
Exposure accuracy	±5%	
Collimator accuracy from source to image distance	2%	

#### SPARE PARTS

<b>S. No.</b>	<b>Description</b>	<b>Part No.</b>	<b>Quantity</b>	<b>Note</b>
1)				
2)				

Status: ☐ Passed ☐ Service Required

<b>REMARKS</b>

<b>S. No.</b>	<b>Performed By</b>	<b>Signature</b>
1)		
2)		

Approved By:

### 13.9 X-ray Cassette Reader

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Pest Infestation		
Grounding		
Backup power		
Physical damage		
Indicators/Display		
Fuse		
Strain Relief		
Environmental Control		
Temperature (18-25°C)		
Humidity (between 40–60%)		
FUNCTIONAL TESTING		
Cassette insertion and ejection		
Image processing time		
Image acquisition process		
Image resolution and contrast		
PSP for scratch, dust, etc		
Connectivity of PACS/RIS		
Imaging Software		
CLEANING and DISINFECTION		

Clean Cassette insertion slot		
Clean Intake Vent, Exhaust outlet		
Clean light collection unit		
Clean filter and fan		
Clean Cassette		
Clean Imaging plate		
Clean Rollers		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	
Input Voltage		

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## **14. Physiotherapy Equipment**

14.1 Continuous Passive Motion (CPM).....	265
14.2 Diathermy.....	267
14.3 Interferential therapy Machine (IFT) .....	269
14.4 Muscle Stimulator .....	271
14.5 Traction Unit .....	273
14.6 Transcutaneous Electrical Nerve Stimulation (TENS) .....	275
14.7 Treadmill Test Machine .....	277
14.8 Wax Bath.....	279

## 14.1 Continuous Passive Motion (CPM)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Power Cable, plugs and connectors secure		
Pest Infestation		
Indicators/ Display		
Accessories		
Fuse		
Fittings/ Connectors		
Castors/Wheels		
Strain Relief		
FUNCTIONAL TESTING		
Power ON		
Straps, support and padding intact		
Range of motion (ROM )setting		
Flexion / Extension		
Speed control		
Force/Torque resistance		
Noise levels		
Timer setting		

Start/Stop and emergency buttons		
Motion range (0°–120° for knee)		
<b>CLEANING and DISINFECTION</b>		
Clean external surface with non-corrosive disinfectant		
Strap clean and free from dirt		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:



## 14.2 Diathermy

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Pest Infestation		
Indicators/ Display		
Electrodes/Applicator worn out		
Fuse		
Fittings/ Connectors		
Castors/Wheels		
RFI interference to nearby devices		
Strain Relief		
FUNCTIONAL TESTING		
Power ON/OFF		
Electrodes/Applicators		
Confirm output intensity according to the frequency setting and time response.		
Audible alert		
Heating when output is off		
Sparking from electrode		
CLEANING and DISINFECTION		
Clean external surface with non-corrosive disinfectant		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

### 14.3 Interferential therapy Machine (IFT)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Power Cable, plugs and connectors secure		
Pest Infestation		
Indicators/ Display		
Cable		
Labelling		
Accessories		
Fuse		
Fittings/ Connectors		
Castors/Wheels		
Strain Relief		
FUNCTIONAL TESTING		
Power ON		
Timer operates and counts properly		
Amplitude increases		
Frequency setting		
Treatment modes		
Sweep/modulation setting		
Electrode connection test		

<b>CLEANING and DISINFECTION</b>		
Clean external surface with non-corrosive disinfectant		
Clean electrodes		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

**Approved By:**

## 14.4 Muscle Stimulator

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Power Cable, plugs and connectors secure		
Pest Infestation		
Indicators/ Display		
Accessories		
Fuse		
Fittings/ Connectors		
Castors/Wheels		
Strain Relief		
FUNCTIONAL TESTING		
Power ON		
Electrodes connection		
Treatment head		
Stimulation modes		
Timer Function		
Intensity/amplitude adjust smoothly		
Output waveform		
Contraction/Rest Cycle Functionality(if applicable)		
CLEANING and DISINFECTION		

Clean external surface with non-corrosive disinfectant		
Clean electrodes		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 14.5 Traction Unit

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	
Dynamometer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Pest Infestation		
Indicators/ Display		
Cable		
Accessories		
Fuse		
Fittings/ Connectors		
Castors/Wheels		
Strain Relief		
FUNCTIONAL TESTING		
Power ON		
Intensity controller		
Force accuracy and calibration		
Timer accuracy		
Intermittent cycle functionality (if applicable)		
Over-Force Protection/Limit Switches (if applicable)		
Motor		
Moving parts		
Alarm		

Mode test		
Emergency stop		
<b>CLEANING and DISINFECTION</b>		
Clean external surface with non-corrosive disinfectant		

<b>QUANTITATIVE TEST</b>		
<b>Tests</b>	<b>Ref value</b>	<b>Remarks</b>
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:



## 14.6 Transcutaneous Electrical Nerve Stimulation (TENS)

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	
Oscilloscope	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Pest Infestation		
Indicators/ Display		
Accessories		
Fuse		
Fittings/ Connectors		
Castors/Wheels		
Strain Relief		
FUNCTIONAL TESTING		
Power ON		
Mode selection works (Burst, Normal, Modulated, etc.)		
Intensity control		
Stimulation from all channels		
Output waveform		
Timer function		
No abnormal heating or spark		
TENS frequency accuracy (1-200Hz)		
Pulse width duration accuracy: 0–250 μs		
CLEANING and DISINFECTION		

Clean external surface with non-corrosive disinfectant		
Clean electrodes		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 14.7 Treadmill Test Machine

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Pest Infestation		
Indicators/ Display		
Fuse		
Fittings/ Connectors		
Castors/Wheels		
Strain Relief		
FUNCTIONAL TESTING		
Power ON		
Treadmill start and stop as per command		
Belt and hand rail intact		
Motor movement		
Inclination functionality		
Emergency stop switch functioning		
Speed function		
Print out system		
CLEANING and DISINFECTION		
Clean external surface with non-corrosive disinfectant		

QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

## 14.8 Wax Bath

PREVENTIVE MAINTENANCE (PM) CHECKLIST	
Hospital Name:	Inventory Number:
Make/Model:	Manufacturer:
PM Frequency:	Date of PM:
Serial No.:	Next PM:

TEST APPARATUS	SPARES
Multimeter	Fuses
Electrical Safety Analyzer	

QUALITATIVE TEST		
VISUAL INSPECTION	√ / X	Action needed/Action taken
Casing/Housing/Chassis		
Mount/Fasteners		
Labels/Safety Sticker		
Controls/Switches		
Pest Infestation		
Indicators/ Display		
Power Cable, plugs and connectors secure		
Wax Labeling		
Accessories		
Fuse		
Fittings/ Connectors		
Castors/Wheels		
Strain Relief		
FUNCTIONAL TESTING		
Power ON		
Temperature control		
Heating element		
Wax melts evenly		
Thermostat working		
Safety Thermal cutoff		
Lid fits properly		
CLEANING and DISINFECTION		
Clean external surface with non-corrosive disinfectant		

Change Wax if needed		
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QUANTITATIVE TEST		
Tests	Ref value	Remarks
Grounding Resistance	<0.5 Ohm	
Leakage current chassis to IEC 60601	<100 µA	
Leakage current patient leads acc. to IEC 60601	<100 µA	

#### SPARE PARTS

S. No.	Description	Part No.	Quantity	Note
1)				
2)				

Status: ☐ Passed ☐ Service Required

REMARKS

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By :

## Criteria of Internship Institution

To ensure effective student training, internship institutions should meet the following minimum criteria:

Criteria	Description
<b>Accreditation/Approval</b>	Institutions must be recognized by government or regulatory health bodies.
<b>Internship Site</b>	Should be at least 50-bedded hospital
<b>Functional Biomedical Department</b>	Should have a dedicated team for equipment maintenance and support.
<b>Device Variety</b>	Must have a range of diagnostic, therapeutic, and life-support devices.
<b>Supervision Capability</b>	Should provide supervision by qualified biomedical engineers or technicians.
<b>Access to Tools &amp; Equipment</b>	Basic tools should be available for learning.
<b>Willingness to Mentor</b>	Should allow students to participate in maintenance tasks under guidance.

## Annex I

### List of General Tools

S.N.	Tools	Qty	Unit
1	Wire Stripper	1	Nos
2	Combination Plier	1	Nos
3	Nose Pliers	1	Nos
4	Snub Nose Pliers	1	Nos
5	Thumb Screw Driver	1	Nos
6	Cutting Pliers	1	Nos
7	Adjustable Wrench 10"	1	Nos
8	Spanner Set Double Operner 8 pcs	1	Set
9	Screw Driver 11 pcs	1	Set
10	Precision Screw Driver 5 pcs	1	Set
11	Allen Key Set 9 pcs BA/Metric	1/1	Set
12	Half Round File	1	Set
13	Measuring Tape 3M	1	Nos
14	Hammer 300 g	1	Nos
15	Tweezers	1	Nos
16	Hacksaw with Blade	1	Nos
17	Dust Cleaning Brush	1	Nos
18	Line Tester	1	Nos
19	Soldering Iron	1	Nos
20	Multi Meter ( Unit of equivalent)	1	Nos
21	Disordering Pump (Big Size)	1	Nos
22	Monkey Wrech (Vice Wrench)	1	Nos
23	Paper Knife	1	Nos
24	Diff Size of Rating Fuse	1	Pcs
25	Padlock	1	Nos
26	Tool Box	1	Nos



## Annex II

### Form 1

### उपकरण मर्मत अनुरोध फारम

फारम नं.....

मिति:

श्री.....

उपकरण मर्मतका लागि निम्न उपकरण र त्यसमा प्रयोग भएका सामानहरू पठाईएको छ।

क्र.सं.	उपकरण आई. डि. नं. (EIN)	उपकरण विवरण	परिमाण	मोडेल	सिरियल नं.
अतिरिक्त सामग्रीहरू (Accessories)					
क्र.सं.	विवरण			परिमाण	

पठाउनेको तर्फबाट:

दस्तखत:

नाम:

पद:

सम्पर्क नं.

मिति:

बुझिलिनेको:

दस्तखत:

नाम:

पद:

सम्पर्क नं.

मिति:

## Form 2

### उपकरण मर्मतका लागि प्राप्ति फारम

फारम नं.....

श्री.....

मर्मतका लागि पठाईएका निम्न वमोजिमका उपकरण र त्यसमा प्रयोग हुने सामानहरू यस बायोमेडिकल कार्यशालामा प्राप्त भयो।

क्र.सं.	उपकरण आई. डि. नं. (EIN)	उपकरण विवरण	परिमाण	मोडेल	सिरियल नं.

सहायक सामग्रीहरू (Accessories)		
क्र.सं.	विवरण	परिमाण

प्राप्त गर्नेको नाम:

पद:

सम्पर्क नं.

मिति:

ल्याउनेको नाम:

पद:

सम्पर्क नं.

मिति:

### Form 3

## उपकरण मर्मत सम्बन्धी विस्तृत विवरण फारम

फारम नं.....

मिति:

उपकरण मर्मतका लागि अनुरोध फारम नं.....

क्र.सं.	उपकरण आई. डि. नं. (EIN)	उपकरण विवरण	परिमाण	मोडेल	सिरियल नं.

उपकरणको विवरण:

Operation Voltage.....Current.....Power.....

मर्मत पूर्व अवस्था:
मुख्य समस्या:
मर्मत विवरण:
मर्मत पश्चातको अवस्था:

मर्मत गर्ने प्राविधिक:

दस्तखत:

नाम:

पद:

## Form 4

### मर्मत भएका उपकरण प्रेषण (Dispatch) फारम

फारम नं.....

मिति:

श्री.....

फारम नं..... वमोजिमका निम्न उपकरण र त्यसमा प्रयोग भएका सामानहरू फिर्ता पठाईएको छ।

क्र.सं.	उपकरण आई. डि. नं. (EIN)	उपकरण विवरण	परिमाण	मोडेल	सिरियल नं.

सहायक सामग्रीहरू (Accessories)		
क्र.सं.	विवरण	परिमाण

मर्मत गर्ने प्राविधिक

दस्तखतः

नामः

पदः

सम्पर्क नं.

मिति:

बुझिलिनेको:

दस्तखतः

नामः

पदः

सम्पर्क नं.

मिति:

## Annex III

### Supervision Form

National Health Training Center

Diploma in biomedical Equipment Engineering (DBEE)

(Affiliated to CTEVT)

Internship feedback form

Name of participants:

1.

2.

#### Competency

S.N.	Number of repairs	Number of PM	Remarks
1			<i>(Total numbers of the repair and the PM should be verified with the help of form provided)</i>
2			
3	Attendance		<i>(Out of total working days)</i>

#### Supervisor remarks

--

#### Feedbacks and suggestion for the organization

--

Signature of the supervisor:

Signature on behalf of BMET unit:

Date:

Date:

## Annex IV

### Testing Device formats

#### 1. Defibrillator Testing Device

MANUFACTURER: \_\_\_\_\_

MODEL: \_\_\_\_\_

SERIAL NO: \_\_\_\_\_

TEST CARRIED ON: \_\_\_\_\_

Test Equipment Used: Electrical Safety Analyzer (ESA) and Defibrillator Analyzer

Equipment details:

Testing Equipment details	Model	Make	Serial No	Calibration Valid Till
Electrical Safety Analyzer				
Defibrillator Analyzer				
<b>Electrical Safety Test for Defibrillator As per IEC60601/62353</b>				
Parameter	Permitted Values	Measured Values	Deviation %	Remarks (PASS /FAIL/NA)
Ground wire resistance	< 0.3 $\Omega$			
Chassis leakage	< 100 $\mu$ A NC			
	< 500 $\mu$ A SFC			
Patient leakage current	< 100 $\mu$ A B and BF			
	< 10 $\mu$ A CF			
Patient lead leakage current: isolation test (mains on applied part)	< 100 $\mu$ A BF			
	< 10 $\mu$ A CF			
Insulation test (optional) 500 V	< 2 M $\Omega$			

Defibrillator Performance Testing				
DUT set values (Energy in Joules 'J')	Test equipment measured values (energy in J)	Deviation %	Tolerance	Remarks (PASS /FAIL/NA)
50 J			± 15 %	
100 J			± 15 %	
150 J			± 15 %	
200 J			± 15 %	
250 J			± 15 %	
300 J			± 15 %	
Charge time test:				

☐ Unit Passed

☐ Unit Failed

Remarks

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

Date:

## 2. Electrical Safety Testing

MANUFACTURER: \_\_\_\_\_

MODEL: \_\_\_\_\_

SERIAL NO: \_\_\_\_\_

TEST CARRIED ON: \_\_\_\_\_

Test Equipment Used: Electrical Safety Analyzer (ESA)

Testing Equipment details	Model	Make	Serial No	Calibration Valid Till
Electrical Safety Analyzer				

Unit Passed

Unit Failed

Remarks				
Electrical Safety Test As per IEC standard 60601/62353				
Parameter	Limits	Measured Values	Deviation %	Remarks (Pass/Fail/NA)
Voltage N-E	< 3V			
Maximum Current Taken by the DUT(Device Under Test)	As per Manufacture specification			
Protective Earth resistance	< 0.300 Ohm			
Earth Leakage Current NC	< 500μA for B, BF, CF			
Earth Leakage Current SFC	< 1000μA for B, BF, CF			
Chassis leakage in NC	< 1000 μA for B, BF, CF			NC: Normally close
Chassis leakage in SFC	< 500 μA for B, BF, CF			SFC: Single Fault condition
Patient leakage current in NC	< 100 μA for B and BF			
	< 10 μA for CF			
Patient leakage current in SFC	< 500μA for B and BF			
	< 50μA for CF			
Insulation Resistance(optional) 500 V	More than 70 MΩ	<input type="checkbox"/>		

S. No.	Performed By	Signature
1)		
2)		

Approved By:

Date:



### 3. Electrosurgical Unit Analyzer

MANUFACTURER: \_\_\_\_\_ MODEL: \_\_\_\_\_

SERIAL NO: \_\_\_\_\_ TEST CARRIED ON: \_\_\_\_\_

Test Equipment Used: ESA and Electrosurgical Unit Analyzer

Equipment Details:

Generator Output Test	Set Power on ESU	Set Load	Set Delay	Power Delivered	Current Delivered	VpkPk	Crest Factor
Monopolar Cut	100 W	200 $\Omega$	1s				
Monopolar Cut	80W	150 $\Omega$	2s				
Monopolar Coag	100W	150 $\Omega$	1s				
Monopolar Coag	80W	200 $\Omega$	2s				
Bipolar Test	60W	200 $\Omega$	1s				
Bipolar Test	80W	200 $\Omega$	2s				

HF Leakage test			
Electrode to Ground	Set Max Power on ESU	Delay	Current Delivered
Monopolar Cut		2s	
Monopolar Coag		2s	
Monopolar Cut		4s	
Monopolar Coag		4s	
Bipolar Coag		2s	
Bipolar Coag		4s	
Patient Plate to Ground	Set Power	Delay	Current Delivered
Monopolar Cut		2s	
Monopolar Coag		2s	
Monopolar Cut		4s	
Monopolar Coag		4s	
Bipolar Coag		2s	
Bipolar Coag		4s	

☐ Unit Passed

☐ Unit Failed

Remarks		
S. No.	Performed By	Signature
1)		
2)		

Approved By:

Date:

#### 4. Infusion Pump Testing

MANUFACTURER: \_\_\_\_\_

MODEL: \_\_\_\_\_

SERIAL NO: \_\_\_\_\_

TEST CARRIED ON: \_\_\_\_\_

Test Equipment Used: Electrical Safety Analyzer (ESA) and Infusion Pump Analyzer

Equipment details:

Testing Equipment details	Model	Make	Serial No	Calibration Valid Till
Electrical Safety Analyzer (ESA)				
Infusion Pump Analyzer				

Electrical Safety test for Infusion PUMP AND SYRINGE PUMP As per IEC60601/62353					
S.N.	Parameter	Permitted Values	Measured Values	Deviation %	Remarks (Pass/Fail/NA)
	Ground wire resistance	< 0.3 $\Omega$			
	Chassis leakage	< 100 $\mu$ A NC			
		< 500 $\mu$ A SFC			
	Patient leakage current	< 100 $\mu$ A B and BF			
		< 10 $\mu$ A CF			
	Patient lead leakage current: isolation test (mains on applied part)	< 100 $\mu$ A BF			
		< 10 $\mu$ A CF			
	Insulation test (optional) 500 V	< 2 M $\Omega$			
	<b>Infusion Pump Performance testing</b>				
	Flow rate accuracy	$\pm$ 10 %			
	Volume accuracy	$\pm$ 10 %			
	Occlusion detection pressure	$\pm$ 1 psi			

☐ Unit Passed

☐ Unit Failed

Remarks:

.....

Performed by:

Approved by:

Date:

## 5. Oxygen Concentrator

MANUFACTURER: \_\_\_\_\_

MODEL: \_\_\_\_\_

SERIAL NO: \_\_\_\_\_

TEST CARRIED ON: \_\_\_\_\_

Test Equipment Used: Electrical Safety Analyzer (ESA) and Oxygen Analyzer

Equipment details:

Testing Equipment details	Model	Make	Serial No	Calibration Valid Till
Electrical Safety Analyzer				
Oxygen Analyzer				

Oxygen concentrator description to be tested	Flow in LPM	Purity in % (Acceptable range $\geq 93\%$ )	PSI	Remarks (PASS /FAIL/NA)
Model:	2 LPM			
Serial no:	3 LPM			
Inventory no.:	4 LPM			
Manufacturer:	5 LPM			

☐ Unit Passed

☐ Unit Failed

Remarks

S. No.	Performed By	Signature
1)		
2)		
3)		

Approved By:

Date:

## 6. Physiological Monitoring System (Patients monitor)

MANUFACTURER: \_\_\_\_\_

MODEL: \_\_\_\_\_

SERIAL NO: \_\_\_\_\_

TEST CARRIED ON: \_\_\_\_\_

Test Equipment Used: Electrical Safety Analyzer (ESA) and Patient Simulator

Equipment details:

Testing Equipment details	Model	Make	Serial No	Calibration Valid Till
ESA				
Spo2 Functional Tester and Patient Simulator				

H R Monitoring		Respiration	
Preset Value	Measured Value	Preset Value	Measured Value
Normal - 60BPM ±5%		20 BrPM ±5%	
Hypertensive - 120BPM ±5%		40 BrPM ±5%	
Hypotensive - 40BPM ±5%		10 BrPM ±5%	
SPO2 Test		NIBP Test	
Preset Value	Measured Value	Preset Value	Measured Value
75% ±3%		Normal - 120/80 mmHg ±10mmHg	
85% ±3%		Hypertensive - 200/150 mmHg ±10mmHg	
99% ±3%		Hypotensive - 60/30 mmHg ±10mmHg	

Arrhythmias	
Ventricular fibrillation	Observed <input type="checkbox"/>
Asystole	Observed <input type="checkbox"/>
Ventricular tachycardia	Observed <input type="checkbox"/>

☐ Unit Passed

☐ Unit Failed

Remarks

S. No.	Performed By	Signature
1)		
2)		

Approved By:

Date:

## Annex V

### Checklist piloted sites

S.N.	Name of Hospital	Supervisors	Name of Students
1.	National Academy of Medical Sciences, Bir Hospital	Er. Satyam Rai Aastha Dahal	Prabin Khatiwada Gautam Chaudhary
2.	Patan Academy of Health Sciences (PAHS)	Er. Swostik KC Mahesh Timelsina	Bishal Parajuli Naresh Kumar Chaudhary
3.	Kanti Children Hospital	Roshan Bajracharya Sachin Nepali	Yub Raj Joshi Rashmi Acharya
4.	Nepal APF Hospital	Surendra Paudel	Sandip Panday
5.	National Trauma Centre	Suresh Maharjan Bikesh Maharjan Kuber Oli	Saurav Dhami Sribina Rai
6.	Grande International Hospital	Sushil Timelsina	Subit Bisunke
7.	Kist Medical College and Teaching Hospital	Roshan Pokharel Binita Shrestha	Sunil Kumar Yadav Ritesh Kumar Yadav
8.	Tribhuvan University Teaching Hospital (TUTH)	Er. Rusha Acharya	Peter Rijal
9.	HAMS	Pooja Baniya Sashi Kumar Thakur	Prabin Khadka
10.	Bhaktapur Hospital	Sandipa Khadka Prativa Bhusal	Ram Kumar Shah

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## Index

- AB Scan Machine, 227
- ACT Machine, 31
- Anesthesia Machine, 60
- Annex I**, 282
- Annex II**, 283
- Annex III**, 287
- Annex IV**, 288
- Annex V**, 295
- Application, 2
- Arterial Blood Gas Analyzer (ABG), 33
- Arthroscopy tower, 62
- Audiometer, 218
- Auto Ref-Keratometer, 229
- Autoclave, 86
- Automatic Slide Stainer, 132
- Background, 1
- BERA Machine, 220
- Bilirubinometer, 134
- Binocular Microscope, 136
- Biochemistry Analyzer (Fully Automated), 138
- Biochemistry Analyzer (Semi-Automated), 140
- Biosafety Cabinet, 142
- BiPAP Machine, 35
- Blood and Fluid Warmer, 64
- BP Machine, 8
- Bronchoscope (flexible or rigid), 37
- Cardiac Monitor, 39
- Cardiotocography (CTG) Machine, 97
- C-Arm Machine, 246
- CD4 counter, 144
- Centrifuge Machine, 146
- Checklist Description, 1
- Coagulation Analyzer, 148
- Colorimeter, 150
- Continuous Passive Motion (CPM), 265
- CPAP Machine, 10
- CR Printer, 248
- Criteria of Internship Institution**, 281
- CT Scan, 250
- Cyto Centrifuge Machine, 152
- Deep Freezer, 154
- Defibrillator/Automated External Defibrillator (AED), 12
- Dental Chair, 209
- Dental Unit, Complete, 211
- Dental X-Ray Unit, 213
- Dialyzer Reprocessing Machine, 110
- Diathermy, 267
- Direct Ophthalmoscope, 231
- DR System (Flat Panel Detector), 252
- Dry Bath Incubator, 156
- ECHO/ Ultrasound Machine, 254
- ECMO (Extracorporeal Membrane Oxygenation) Machine, 41
- EEG, 117
- Electro Surgical Unit (ESU), 66
- Electrocardiograph Multi channel (ECG), 14
- Electrolyte Analyzer, 158
- Electrophoresis Machine, 160
- EMG, 119
- ENT Microscope, 222
- ENT Treatment Unit, 224
- ETO Sterilizer (ethylene oxide), 88
- Examination Lamp/Light, 16
- Extraction Machine, 162
- Fetal Doppler, 99
- Fetal Monitor, 101
- Flash Autoclave, 90
- Flow Cytometer, 164
- GeneXpert, 166
- Green Laser, 233
- Handheld Pulse Oximeter, 43
- Hematology Analyzer, 168
- Hemodialysis Machine, 112
- High Flow Nasal Cannula (HFNC), 45
- High Performance Liquid Chromatography (HPLC Analyzer), 170
- Holter Machine, 47
- Hot Air Oven, 172
- How to Use This Checklist, 2
- ICU Bed, Electric, 49
- Immuno Assay Analyzer (CLIA), 174
- Immuno Assay Analyzer (ELISA-Reader), 176
- Immuno Assay Analyzer (ELISA-Washer), 178
- Immuno Assay Analyzer (FIA), 180
- Immuno Assay Analyzer (Fully Automated - ELISA), 182
- Incubator, 184
- Indirect Ophthalmoscope, 235
- Infant Incubator, 103
- Infusion Pump, 51
- Interferential therapy Machine (IFT), 269
- Intraoperative Neuro Monitoring System, 121
- Introduction**, 1
- Laparoscopy Tower, 68
- Lensometer, 237

Lithotripsy Machine, 70  
Mammography System, 256  
Microtome, 186  
Microwave/ Frictional Heat, 92  
Mortuary Refrigerator, 18  
Muscle Stimulator, 271  
Nebulizer, 20  
Neuro Bone Drill, 123  
Non-Contact Tonometer, 239  
Objectives, 1  
Operating Table (OT Table), 72  
OPG Machine, 215  
OT Light (Ceiling), 74  
OT Light (Portable), 76  
Oxygen Concentrator, 79  
Oxygen Plant and MGPS, 81  
Patient Monitor, 53  
PCR Cabinet, 188  
PCR Machine, 190  
Phototherapy Unit (Infant), 105  
Plasma Sterilizer, 94  
Portable X-ray Machine, 258  
Protein Analyzer/Nephelometry, 192

Pulmonary Function Test (PFT) Machine, 22  
Radiant Warmer, 107  
**References**, 296  
Refrigerated Centrifuge Machine, 194  
Refrigerator, 196  
Shaker (Mixer), 198  
Slit Lamp, 241  
Stationary X-ray Machine, 260  
Stethoscope, 24  
Suction Apparatus, 26  
Surgical Neuro Microscope, 125  
Syringe Pump, 55  
Tissue Processor, 200  
Traction Unit, 273  
Transcutaneous Electrical Nerve Stimulation (TENS), 275  
Treadmill Test Machine, 277  
Urine Analyzer (Semi Automated), 202  
Ventilator, 57  
Water Bath, 204  
Water Treatment System, 114  
Wax Bath, 279  
X-ray Cassette Reader, 262











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**Ministry of Health & Population**  
**National Health Training Centre**  
Teku, Kathmandu  
2025