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**QUESTION BANK**

**UNIT 1- CARDIAC EQUIPMENT**

**SYLLABUS**

Electrocardiograph, Normal and Abnormal Waves, Heart rate monitor, Holter Monitor, Phonocardiography, ECG machine maintenance and troubleshooting, Cardiac Pacemaker- Internal and External Pacemaker– Batteries, AC and DC Defibrillator- Internal and External, Defibrillator Protection Circuit, Cardiac ablation catheter

<b>Part A</b>			
<b>Q.No</b>	<b>Questions</b>	<b>Course Outcome</b>	<b>Levels</b>
1.	Define Holter monitor.	CO1	K1
2.	List any two applications of ECG.	CO1	K4
3.	List out the types of cardiac pacemaker.	CO1	K4
4.	What is plethysmography?	CO1	K1
5.	What is electrocardiograph?	CO1	K1
6.	What is the lifetime of pacemaker battery?	CO1	K1
7.	List out the frequency range of ECG waves.	CO1	K4
8.	What is defibrillator?	CO1	K1
9.	What is phonocardiography?	CO1	K1
10.	Outline ECG waveforms.	CO1	K1
11.	What are the diagnosis information we get from holtermoniter?	CO1	K1
12.	Define AED.	CO1	K1
13.	What is unipolar pacemaker?	CO1	K1
14.	What is FRC?	CO1	K1
15.	What do you mean by arrythemia?	CO1	K1
16.	Give the normal cardiac parameter values of human body.	CO1	K1
17.	List out the types of defibrillator.	CO1	K4

18.	What is Einthoven triangle?	CO1	K1
19.	Compare AC and DC defibrillators.	CO1	K5
20.	Define implantable defibrillators.	CO1	K6

**Part B**

1.	Discuss electrocardiogram with required diagram.	CO1	K6
2.	Differentiate defibrillators and cardiac pacemakers.	CO1	K1
3.	Explain in detail about various heart diseases and their diagnosis using ECG.	CO1	K5
4.	Discuss the types of cardiac pacemakers.	CO1	K6
5.	Explain in detail about heart rate monitor cardiography.	CO1	K5
6.	Discuss about plethysmography.	CO1	K6
7.	Explain in detail about holtermonitor as a ambulatory device.	CO1	K5
8.	Explain cardiac pacemakers in detail.	CO1	K5
9.	Explain in detail about defibrillators.	CO1	K5
10.	Explain in detail about types of defibrillators.	CO1	K5

**UNIT 2 – NEUROLOGICAL EQUIPMENT**

**SYLLABUS**

Clinical significance of EEG, Multi-channel EEG recording system, Epilepsy, Evoked Potential–Visual, Auditory and Somatosensory, MEG (Magneto Encephalo Graph). EEG Bio Feedback Instrumentation. EEG system maintenance and troubleshooting..

**Part A**

Q.No.	Questions	Course Outcome	Levels
1.	What is the significance of EEG?	CO2	K1
2.	What is multichannel EEG?	CO2	K1
3.	Define epilepsy.	CO2	K1
4.	What are the types of epilepsy?	CO2	K1
5.	What is evoked potential?	CO2	K1
6.	What is somatosensory response?	CO2	K1
7.	Define EEG.	CO2	K1
8.	What is MEG?	CO2	K1

9.	What is EEG feedback?	CO2	K1
10.	Define biofeedback instrumentation.	CO2	K1
11.	What are the applications of MEG in medical field?	CO2	K1
12.	What is montage?	CO2	K1
13.	Compare EEG and MEG.	CO2	K1
14.	Write down the parts of human brain.	CO2	K1
15.	List the types of EEG waveforms.	CO2	K4
16.	Give the frequency range of EEG.	CO2	K1
17.	Give the source of origin of brain waves.	CO2	K1
18.	List the electrode placement regions in EEG.	CO2	K4
19.	Give the electrode configuration of EEG.	CO2	K1
20.	Outline EEG electrode placement.	CO2	K2
<b>Part B</b>			
1.	Explain in detail about electroencephalogram.	CO2	K5
2.	Explain in detail about EEG biofeedback instrumentation.	CO2	K5
3.	Discuss in detail about multichannel EEG.	CO2	K6
4.	Explain the detail about MEG.	CO2	K5
5.	Explain in detail about evoked potential.	CO2	K5
6.	Explain EEG electrode configuration in detail.	CO2	K5
7.	Discuss about EEG montage and electrode selection panel.	CO2	K6
8.	Discuss in detail about significance of EEG waveforms in diagnosis of various brain diseases.	CO2	K6

### UNIT 3 -SKELETAL MUSCULAR EQUIPMENT

#### SYLLABUS

Recording and analysis of EMG waveforms, fatigue characteristics, Muscle stimulators, nerve stimulators, Nerve conduction velocity measurement, EMG Bio Feedback Instrumentation. Static Measurement – Load Cell, Pedobarograph. Dynamic Measurement – Velocity, Acceleration, GAIT, Limb position.

#### Part A

Q. N o.	Questions	Course Outcome	Levels
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1.	Define EMG.	CO3	K1
2.	List some muscle disorders diagnosed by EMG.	CO3	K4
3.	What are muscle stimulators?	CO3	K1
4.	List out the applications of EMG.	CO3	K4
5.	Define nerve conduction velocity.	CO3	K1
6.	What is fatigue?	CO3	K1
7.	Give the characteristics of fatigue.	CO3	K1
8.	What is TENS?	CO3	K1
9.	Define nerve stimulator.	CO3	K1
10.	List the applications of TENS.	CO3	K4
11.	Give the frequency range of EMG waveform.	CO3	K1
12.	What are the types of electrodes used in EMG?	CO3	K1
13.	What are the equipments used in physiotherapy?	CO3	K1
14.	What is EMG biofeedback ?	CO3	K1
15.	DefineEMG recording setup with neat diagram.	CO3	K1
16.	What is the use of EMG in medical field ?	CO3	K1
17.	What is the amplitude range of EMG waveform?	CO3	K1
18.	How abnormal EMG waves are detected?	CO3	K2
	<b>Part B</b>		
1.	Explain in detail about electromyogram.	CO3	K5
2.	Write short notes on nerve conduction velocity measurement.	CO3	K1
3.	Explain about Transcutaneous electrical nerve stimulator.	CO3	K5
4.	Write short notes on EMG recording setup.	CO3	K1
5.	Discuss about muscle stimulators and its applications in medical field.	CO3	K6

6.	Demonstrate EMG electrode placement and EMG waveforms.	CO3	K2
7.	Explain about equipments used in physiotherapy.	CO3	K5
8.	Explain in detail about nerve stimulators and nerve conduction velocity.	CO3	K5
9.	Discuss about muscle stimulators and spinal cord stimulators.	CO3	K6
10.	Discuss about EMG biofeedback instrumentation in detail.	CO3	K6

#### **UNIT 4 – RESPIRATORY MEASUREMENT SYSTEM**

#### **SYLLABUS**

Instrumentation for measuring the mechanics of breathing – Spirometer -Lung Volume and vital capacity, measurements of residual volume, Pneumotachometer – Airway resistance measurement, Whole body Plethysmograph, Intra-Alveolar and Thoracic pressure measurements, Apnoea Monitor. Types of Ventilators – Pressure, Volume, and Time controlled. Flow, Patient Cycle Ventilators, Humidifiers, Nebulizers, Inhalators..

#### **Part A**

<b>Q. No.</b>	<b>Questions</b>	<b>Course Outcome</b>	<b>Levels</b>
1.	Define radio telemetry.	CO4	K1
2.	Discuss the use of bedside monitors.	CO4	K6
3.	List the ICU/CCU equipments.	CO4	K4
4.	What are infusion pumps?	CO4	K1
5.	What is patient monitoring system?	CO4	K1
6.	What are central monitors?	CO4	K1
7.	What is portable telemetry?	CO4	K1
8.	What are the parameters used in patient monitoring system?	CO4	K1
9.	What is respiratory rate?	CO4	K1
10.	Give the configuration of central monitors.	CO4	K1
11.	List out the types of telemetry.	CO4	K4
12.	Define radio telemetry in ECG transmission.	CO4	K4
13.	What is landline telemetry?	CO4	K1
14.	How to overcome disadvantages in telemetry?	CO4	K2
15.	State the applications of telemetry.	CO4	K1

16.	What is the normal value of respiratory rate?	CO4	K1
17.	Give the applications of infusion pump.	CO4	K1
18.	Give the advantages of central console monitors over bedside monitors.	CO4	K1
19.	What are the cardiac equipments used in CCU?	CO4	K1
<b>Part B</b>			
1.	Explain in detail about patient monitoring system.	CO4	K5
2.	Explain in detail about cardiac monitors.	CO4	K5
3.	Discuss about bedside patient monitors.	CO4	K6
4.	Explain in detail about configuration of patient monitoring system.	CO4	K5
5.	Discuss the advantages of modern patient monitoring system over traditional patient monitors.	CO4	K6
6.	Demonstrate ECG and EEG transmission of radio telemetry.	CO4	K2
7.	Explain in detail about landline telemetry system.	CO4	K5
8.	Discuss about configuration of radio telemetry and its applications.	CO4	K6

## UNIT 5 – SENSORY MEASUREMENT

### SYLLABUS

Psychophysiological Measurements – polygraph, basal skin resistance (BSR), galvanic skin resistance (GSR), Sensory responses - Audiometer-Pure tone, Speech, Eye Tonometer, Applanation Tonometer, slit lamp, auto refractometer..

### Part A

Q.No	Questi	Course Outcome	Levels
1.	What is the role of biological kidney?	CO5	K1
2.	What is artificial kidney?	CO5	K1
3.	List the types of Dialysers.	CO5	K4
4.	What is the need of heart lung machine?	CO5	K1

5.	Define endoscopy.	CO5	K1
6.	Define laproscopy.	CO5	K1
7.	What are the different types of oxygenators used in heart lung machine?	CO5	K1
8.	What is tonometry?	CO5	K1
9.	What is lithotripsy?	CO5	K1
10.	Define oxygenators.	CO5	K1
11.	What are the principles of cryogenic techniques?	CO5	K1
12.	Give short notes on cryogenic techniques and its applications.	CO5	K1
13.	What is hemodialyser unit?	CO5	K1
14.	List some ophthalmic instruments.	CO5	K4
15.	What is syringe pump?	CO5	K1
16.	What is thermography?	CO5	K1
17.	What are the applications of thermography in medical field?	CO5	K1
18.	What is heart lung machine?	CO5	K1
19.	What is peritoneal dialysis?	CO5	K1
20.	What is the principle of lithotripsy?	CO5	K1

