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181045/171045

Roll No.....

4th Sem, **Branch :** Eltx. Engg.
Subject : Medical Electronics

Time : 3 Hrs.

M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory. (10x1=10)

- Q.1 Electrodes to measure EEG are placed on _____
a) Forehead b) Scalp
c) Cheeks d) Ears
- Q.2 Which of the following is an example of internal electrodes?
a) Needle electrode b) Suction electrode
c) Metal plate electrode d) Floating electrode
- Q.3 _____ is the way toward recording the electrical action of the heart over some stretch of time.
a) EEG\ b) ECG
c) EMG d) MRI
- Q.4 Which of the following is not an example of therapeutic equipment?
a) Nebuliser b) Pacemaker
c) Ventilator d) ECG machine
- Q.5 LVDE works on the principle of _____
a) Variable resistor b) Variable inductance
c) Variable capacitance d) Variable pressure

Q.6 What is the average heartbeat of Human being?

- a) 100 b) 72
c) 60 d) 82

Q.7 MRI stands for _____

- a) Magnetic radio imaging
b) Moving radio imaging
c) Magnetic resonance imaging
d) None of the above

Q.8 What is the signal amplitude of EMG?

- a) 1.5-5.0 volts b) 0.1-9.0 volts
c) 2.5-5.0 volts d) 0.1-5.0 volts

Q.9 ECG stands for _____

- a) Electro cardio gram
b) Electro cardio graph
c) Electrical cardio graph
d) None of the above

Q.10 CT' stands for _____ of CT scan.

- a) Cardiac tomography
b) Computed tomography
c) Computer transducer
d) None of the above

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

- Q.11 What is a tissue?
Q.12 How much blood is pumped by human heart?
Q.13 Name different types of lobes of cerebrum.

- Q.14 Name any two diagnostic equipment.
- Q.15 Whether MRI is a diagnostic equipment or a therapeutic equipment?
- Q.16 What is the frequency range of ECG machine? (0.05 to 120 Hz)
- Q.17 What is the device scientific name of blood pressure meter?
- Q.18 What is the use of Spirometer?
- Q.19 What is gross shock?
- Q.20 What is the standard number of electrodes used in ECG diagnostic test.

SECTION-C

- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)
- Q.21 What is pressure transducer? Explain any one briefly.
- Q.22 What is the purpose of defibrillator?
- Q.23 What is the need of cardiac pacemaker?
- Q.24 Distinguish between clinical laboratory equipment differ from diagnostic equipment.
- Q.25 Write a short note on heart rate measurement.
- Q.26 What do you mean by bio-sensor? What is its working principle?
- Q.27 Give the basic of contact impedance.
- Q.28 Explain the methods to measure temperature of the body.
- Q.29 Distinguish between ECG and EMG.

- Q.30 What are the various safety aspects of medical equipment?
- Q.31 What is EEG machine? Draw and explain block diagram of EEG machine.
- Q.32 Draw and explain ECG waveforms.
- Q.33 Write a short note on X-ray machine.
- Q.34 What is leakage current?
- Q.35 Draw and explain block diagram of respiration rate monitor.

SECTION-D

Note: Long Answer type question. Attempt any two questions out of three questions. (2x10=20)

- Q.36 Explain in detail, how electrodes are classified on the basis of application and place where they are placed?
- Q.37 Describe the MRI system with neat and clean block diagram. Briefly explain function of each block.
- Q.38 Write a short note on any two of the following:
- Role of electronics engineers in medical electronics.
 - Photoelectric transducer.
 - Safety standards of medical instruments.