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Roll No. .....

6th Sem.
Branch : Instrumentation & Control
Sub. : Bio - Medical Instrumentation

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple type Questions. All Questions are compulsory. (6x1=6)

Q.1 ECG machine is a _____ instrument.

a) Therapeutic b) Clinical laboratory

c) Diagnostic d) None of these

Q.2 Lungs are associated with _____ system.

a) Cardiovascular b) Respiratory

c) Nervous system d) Bio-Chemical

Q.3 Output impedance of an Ideal OP-AMP is_____.

a) O b) Infinity

c) Negative d) Positive

Q.4 _____ is known as Therapeutic instrument.

a) ECG machine b) EEG machine

c) Pacemaker d) EMG machine

Q.5 Theta waves are associated with _____.

a) ECG b) EEG

c) EMG d) None of these

Q.6 X-Rays are used in _____ imaging system.

a) X-Ray b) CT Scan

c) MRI d) Ultrasound

SECTION-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Bio-Medical Instrumentation is a branch of science that deals with measurement of physiological variables. (True / False)

Q.8 Mention one application of MRI.

Q.9 _____ is the approximate range of action potential.

Q.10 Expand EMG.

Q.11 Pulse oxymeter is used to measure blood pressure. (True / False)

Q.12 Expand CT scan.

SECTION-C

Note: Short answer type Questions. Attempt any eight questions out of ten Questions. (8x4=32)

Q.13 Discuss Respiratory and Bio-Chemical systems.

Q.14 Mention Ideal characteristics of an OP-AMP.

Q.15 Write short note on contact impedance.

Q.16 Explain resting potential.

Q.17 Discuss OP-AMP as Integrator and differentiator.

Q.18 Explain EEG machine.

Q.19 Write short note on Defibrillator.

Q.20 Discuss Ventilators.

Q.21 Describe working principle of MRI.

Q.22 Write short note on Glucometer.

SECTION-D

Note: Long answer questions. Attempt any two questions out of three Questions. (2x8=16)

Q.23 Explain working principle of Pulse Oxymeter and Pacemaker.

Q.24 Describe OP-AMP as an Instrumentation amplifier with suitable circuit diagram.

Q.25 Explain working principle of CT-SCAN also mention its applications.