

- Q.28 Differentiate between Research & Clinical Instrumentation.
- Q.29 Write a short note on Bio-Electrodes.
- Q.30 Describe action potential of a cell with diagram.
- Q.31 Explain Pacemaker.
- Q.32 Describe CAT scanners.
- Q.33 Explain Spirometer & its applications.
- Q.34 Describe CAT scanners.
- Q.35 Explain Glucometer.

SECTION-D

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

- Q.36 Explain cardiovascular system with suitable diagram.
- Q.37 Describe Block diagram of man-Instrumentation system.
- Q.38 Discuss non invasive Blood pressure measurement method in detail.

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6th Sem / Branch : Instrumentation & Control, EI
Sub. : Bio Medical Instrumentation

Time : 3Hrs.

M.M. : 100

SECTION-A

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

- Q.1 _____ is the way to measure the action potential developed in the muscle fibre of the human body.
- a) EEG
 - b) EMG
 - c) ECG
 - d) None of these
- Q.2 The approximate Value of Action potential of a cell is _____.
 a) 70MV b) -70mv
 c) -20mv d) -20mv
- Q.3 The EMG activity looks like a noise whose frequency ranges from _____.
 a) 100 Hz to 3KHz b) 100Hz to 30KHz
 c) 1000 Hz to 3KHz d) 10Hz to 3Khz
- Q.4 Electroencephalogram is obtained from the _____.
 a) Heart b) Brain
 c) Muscles d) Retina
- Q.5 _____ is the diagnostics instrument.
 a) Pacemaker b) ECG Machine

- c) Defibrillator d) None of these
 Q.6 Spirometer is used to measure _____.
 a) Blood pressure b) Respiratory volume
 c) Blood glucose d) Body temperature
 Q.7 Brain wave Delta is associated with _____.
 a) EEG b) ECG
 c) EMG d) ERG
 Q.8 Which equipment is capable of receiving the transmitted signal and demodulate it to recover information.
 a) Receiver b) Transmitter
 c) Modulator d) Demodulator
 Q.9 ICU stands for _____.
 a) Inter case unit b) Intensive Care Unit
 c) Inter case Unit d) None of these
 Q.10 For an engineer the Respiratory system can be viewed as _____.
 a) Hydraulic System b) Pneumatic System
 c) Both A & B d) None of these

SECTION-B

- Note:** Objective type questions. All questions are compulsory. (10x1=10)
- Q.11 An in vivo measurement is performed outside the body. (T/F)
 Q.12 The preamplifier is a AC coupled differential amplifier with high CMMR. (T/F)

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- Q.13 Blood glucose of a healthy person is from ____ to _____.
 Q.14 Define Depolarization.
 Q.15 Kortkoff sound is associated with blood pressure measurement. (T/F)
 Q.16 Signal to noise ratio should be as low as possible. (T/F)
 Q.17 Expand EMG.
 Q.18 Mention name of any two types of electrodes.
 Q.19 Cardiovascular system is the major hydraulic system in the body. (T/F)
 Q.20 Signal conditioning is sometimes called as signal processing. (T/F)

SECTION-C

- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)
- Q.21 Discuss in vitro and in-vivo measurement with example.
 Q.22 Explain Bio-chemical system of human being.
 Q.23 Discuss electrode-tissue interface.
 Q.24 Describe block diagram of EEG machine.
 Q.25 Explain Bio-Telemetry systems with its block diagram.
 Q.26 Write a short note on ventilators.
 Q.27 Discuss applications of an embedded system in bio-Medical field.

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