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**18ELU28**

**PSG COLLEGE OF ARTS & SCIENCE**
(AUTONOMOUS)

**BSc DEGREE EXAMINATION MAY 2024**
(Sixth Semester)

Branch – **ELECTRONICS**

**MEDICAL ELECTRONICS**

Time: Three Hours Maximum: 50 Marks

**SECTION-A (5 Marks)**
Answer **ALL** questions
**ALL** questions carry **EQUAL** marks (5 x 1 = 5)

1 Which type of electrodes are normally used to measure the potential within a single cell?
(i) Surface Electrode (ii) Micro Electrode
(iii) Monopolar Electrode (iv) Adhesive Electrode

2 The transducer used to determine arterial blood pressure is _____.
(i) Photo voltaic transducer (ii) Stain gauge transducer
(iii) Piezo Electric transducer (iv) LVDT transducer

3 What is frequency range of second heart sound?
(i) 20Hz-50Hz (ii) 50Hz-70Hz
(iii) 30Hz-40Hz (iv) 30Hz-45Hz

4 The disturbance in EEG, resulting from the response to external stimuli is called _____.
(i) Evoked Potential (ii) Provoked potential
(iii) Resting Potential (iv) Impulse response

5 Which threshold of hearing is measured by Pure-Tone Audiometer?
(i) Air Conduction (ii) Bone Conduction
(iii) Air Conduction and Bone Conduction (iv) Speech Reception

**SECTION - B (15 Marks)**
Answer **ALL** Questions
**ALL** Questions Carry **EQUAL** Marks (5 x 3 = 15)

6 a Explain the relationship between action potential and muscle contraction.
OR
b Write a note on basic components of bio medical instrumentation system with a suitable block diagram.

7 a Write a note on photoelectric transducers.
OR
b Explain the working principle of temperature transducer.

8 a How respiration rate is measured?
OR
b Describe the cardiac output. What are the methods used to measure Cardiac output?

9 a Classify the types of pacemakers.
OR
b Compare Hemodialysis and Peritoneal dialysis.

**Cont...**

10 a Discuss the principle and list out the advantages of MRI.

OR

b Write short notes on angiography.

**SECTION -C (30 Marks)**

Answer **ALL** questions

**ALL** questions carry **EQUAL** Marks (5 x 6 = 30)

11 a Classify the microelectrodes and explain any one of its types with neat sketch.

OR

b Explain the different ways of transport of ions through the cell membrane.

12 a Discuss briefly about active transducers.

OR

b Explain biosensor design and how it is useful in medical field?

13 a Draw the block diagram of Ultrasonic blood flowmeter and explain doppler method.

OR

b Explain the indirect method of blood pressure measurement.

14 a Discuss Bipolar Lead system in ECG recorder.

OR

b Explain surgical diathermy with a neat diagram.

15 a Discuss ultrasonic imagining system and enumerate its mode of operation.

OR

b Analyze Bekesy audiometer with necessary block diagram.

Z-Z-Z END