

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2022
(Sixth Semester)

Branch – ELECTRONICS

MEDICAL ELECTRONICS

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 x 1 = 10)

1. The value of Action potential is _____
(i) +20mv (ii) -20mv
(iii) +70mv (iv) -70mv
2. _____ electrode is used to penetrate the skin
(i) Surface (ii) Floating
(iii) Needle (iv) Micro
3. Which one of the following is a Pressure transducer?
(i) Magnetostriction (ii) Strain gauge
(iii) Thermocouple (iv) optical
4. LVDT is abbreviated as _____
(i) Linear Variable Differential Transformer
(ii) Linear Variable Differential Transducer
(iii) Linear Variable Differential Transistor
(iv) Linear Variable Distinguished Transformer
5. _____ filter is used in Electromagnetic Blood flow meter.
(i) High Pass (ii) Low pass
(iii) All pass (iv) Band Pass
6. Which one of the following is used to measure volume changes?
(i) Angiography (ii) Plethysmography
(iii) Echo cardiography (iv) Endoscopy
7. The Instrument used for administrating the electric shock is called _____
(i) Ventilator (ii) Defibrillator
(iii) Pacemaker (iv) endoscopy
8. Ventricular asynchronous pacemaker is also known as _____ pacemaker
(i) Fixed Rate (ii) Demand
(iii) Standby (iv) Inhibited
9. MRI uses _____ region of electromagnetic spectra to provide an image
(i) RF (ii) UHF
(iii) AF (iv) LF
10. In X-ray unit, the voltage is measured in the range of _____
(i) V (ii) mV
(iii) KV (iv) μ V

Cont...

SECTION - B (25 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 5 = 25)

- 11 a Summarize the points on "principle of electrode".
OR
b Illustrate the working and characteristics of Needle electrode.
- 12 a Compare the performance of motion and position transducer.
OR
b Describe the operation of piezoelectric transducer.
- 13 a Illustrate the working of Sphygmomanometer.
OR
b Describe how heart sound is measured.
- 14 a Draw the EMG recording setup and explain its operation.
OR
b Sketch and explain surgical diathermy process.
- 15 a Analyze the operation of Angiogram.
OR
b Illustrate the function of an Audiometer.

SECTION -C (40 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks (5 x 8 = 40)

- 16 a Analyze the generation and characteristics of action potential.
OR
b Examine the Biomedical transducers with suitable diagrams.
- 17 a Discuss the operation of displacement transducer.
OR
b Illustrate the working of Pressure transducer with diagrams.
- 18 a Explain how temperature is measured?
OR
b Analyze the function of Electromagnetic and Ultrasonic Blood flow meter.
- 19 a Elucidate the operation of dc defibrillator.
OR
b Draw the block diagram of Demand Pacemaker and explain each block.
- 20 a Examine the working of MRI scan with suitable block diagram.
OR
b Illustrate the operation of Echocardiography.

Z-Z-Z

END