**23ELU522BN**

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

**BSc DEGREE EXAMINATION DECEMBER 2025**
(Fifth Semester)

Branch - **ELECTRONICS**

**MAJOR ELECTIVE COURSE – I: MEDICAL ELECTRONICS**

Time: Three Hours Maximum: 75 Marks

**SECTION-A (10 Marks)**

Answer **ALL** questions

**ALL** questions carry **EQUAL** marks (10 × 1 = 10)

| Module No. | Question No. | Question | K Level | CO |
|---|---|---|---|---|
| 1 | 1 | The most sensitive detector for single frequency value_____<br>a) oscillator b) headphone<br>c) vibrationgalvanometer d) tuned detector | K1 | CO1 |
| | 2 | _____is a balance equation for computing the resistance<br>a) R1 = R2/R4 b) R1 = R3/R4<br>c) R1 = R2 R3 d) R1 = R2 R3/R4 | K2 | CO1 |
| 2 | 3 | _____sensor uses changes in electrical resistance to measure temperature<br>a) Thermocouple b) RTD<br>c) Thermistor d) Infrared sensor | K1 | CO2 |
| | 4 | _____terminals does a typical LM35 temperature sensor<br>a) 1 b) 3 c) 2 d) 4 | K2 | CO2 |
| 3 | 5 | The physiological parameters is considered one of the most difficult to measure accurately is _____<br>a) Blood pressure b) Blood flow<br>c) Blood volume d) Skin color | K1 | CO1 |
| | 6 | A biosensor typically consists of two maincomponents: a biological recognition element and a _____<br>a) Microprocessor b) Amplifier<br>c) Transducer d) Power source | K2 | CO1 |
| 4 | 7 | Capsule endoscope has a _____ for taking images<br>a) CCD camera b) LED camera<br>c) X-Ray camera d) US camera | K1 | CO3 |
| | 8 | _____surgical functions are performed by the diathermy machine<br>a) cutting, coagulation, fulguration<br>b) cutting, fulguration<br>c) cutting, coagulation<br>d) coagulation, fulguration | K2 | CO3 |
| 5 | 9 | The smallest unit in the reconstruction/projection of an MRI image is called as<br>a)pixel b) voxel<br>c) binary unit d) dot | K1 | CO4 |
| | 10 | Dental X Ray is also known as<br>a) Orthopedics b) Orthopentology<br>c) Orthology d) Orthopentography | K2 | CO4 |

**Cont...**

## SECTION - B (35 Marks)

Answer **ALL** questions

**ALL** questions carry **EQUAL** Marks (5 × 7 = 35)

| Module No. | Question No. | Question | K Level | CO |
|---|---|---|---|---|
| 1 | 11.a. | Enlarge the function of Nervous system. | K2 | CO2 |
| | | (OR) | | |
| | 11.b. | Identify the various types of leads in propagation of Biomedical Transducers | | |
| 2 | 12.a. | Account on properties of Displacement transducer | K3 | CO3 |
| | | (OR) | | |
| | 12.b. | Narrate the process involved in Biosensors. | | |
| 3 | 13.a. | Describe the working principle of Plethysmography | K3 | CO3 |
| | | (OR) | | |
| | 13.b. | Explain the method of approaches in Measurement of Heart Sound | | |
| 4 | 14.a. | Briefly explain the function of Defibrillators. | K3 | CO3 |
| | | (OR) | | |
| | 14.b. | Extract the application of Surgical diathermy machine | | |
| 5 | 15.a. | Elaborate the function unit of Ultrasonic Imaging | K3 | CO3 |
| | | (OR) | | |
| | 15.b. | .Describe about the technique involved in Magnetic Resonance Imaging . | | |

## SECTION -C (30 Marks)

Answer **ANY THREE** questions

**ALL** questions carry **EQUAL** Marks (3 × 10 = 30)

| Module No. | Question No. | Question | K Level | CO |
|---|---|---|---|---|
| 1 | 16 | Analyse the issues about the interfacing between electrode model. | K3 | CO3 |
| 2 | 17 | Outline the high lights of Photoelectric transducer. | K3 | CO3 |
| 3 | 18 | Bring out the function of Measurement of Blood flow meter. | K3 | CO3 |
| 4 | 19 | Illustrate the function of Cardiac pacemakers | K3 | CO3 |
| 5 | 20 | Summarise the importance of Computer Axial Tomography | K3 | CO3 |

Z-Z-Z END