

QP CODE: 106028

Reg. No:

**First Year Bachelor of Prosthetics and Orthotics Degree Regular
Examinations November 2025**

**Basic Electronics
(2024 Scheme)**

Time: 3 Hours

Total Marks: 80

- *Answer all questions to the point neatly and legibly • Do not leave any blank pages between answers • Indicate the question number correctly for the answer in the margin space*
- *Answer all parts of a single question together • Leave sufficient space between answers*
- *Draw table/diagrams/flow charts wherever necessary*
- *Simple calculator shall only be permitted*

Essays

(2x15=30)

1. What is semiconductor

Explain the terms:

- a) Doping
- b) Intrinsic semiconductor
- c) Extrinsic semiconductor
- d) Energy band diagram of semiconductor

2. Explain the following which are used for protection of electrical circuits

- a) Fuse
- b) Earth Leakage Circuit Breaker (ELCB)
- c) Miniature Circuit Breaker (MCB)

Short Essays

(7x5=35)

3. a) Find the effective resistance when two Resistors of 22 ohms and 47 ohms are connected in

- i) Series
- ii) Parallel

b) Calculate the current in the circuit when the supply voltage is 10 V and resistors are connected in series.

4. Write a note on thermistor.

5. Explain the ideal characteristics of an operational amplifier

6. Two capacitors of 2.2 micro farad are connected in i) parallel ii) Series. Calculate the effective capacitance when they are connected in i) parallel ii) Series

7. Write a note on Electromyogram (EMG)

8. Write a note on Light Dependent Resistor (LDR)

9. Explain the different types of electrodes used for bio-potential measurement

Answer briefly

(5x3=15)

10. Define i) Power and ii) Energy

11. What are the six basic units in System International (SI) system

12. Write a short note on any one transducer utilizing piezo-electric effect

13. What is electrode offset voltage

14. Highlight the difference between positive and negative feedback
