

Seat No. **OCT-NOV 2025 WINTER EXAMINATION****12609 Bachelor of Technology (NEP-2.1)****Sub. Name: Basic Electronics Engineering****Sub. Code: 114856****Day and Date: Tuesday ,27-01-2026****Total Marks: 60****Time: 10:30 AM To 12:30 PM**

Instructions: 1. Assume suitable data wherever necessary and mention it boldly
2. Figures to the right indicate full marks
3. Use Sketches/Diagrams wherever necessary

Special Inst.: 1. Question No.1 is compulsory to Attempt.
2. Attempt any Three Questions from Question No. 2 to 5.

Q1) Answer the following MCQs.**[6]**

- i. The depletion region in a PN junction diode is formed due to:
 - A. Recombination of free electrons only
 - B. Diffusion of majority carriers across the junction
 - C. Drift of minority carriers
 - D. External applied voltage

- ii. Which filter provides the best ripple reduction?
 - A. Shunt capacitor filter
 - B. Series inductor filter
 - C. LC filter
 - D. Pi filter

- iii. The main purpose of transistor biasing is to:
 - A. Increase gain
 - B. Reduce noise
 - C. Stabilize operating point
 - D. Reduce power loss

- iv. Which coupling is most commonly used in audio frequency amplifiers?
 - A. Direct coupling
 - B. Transformer coupling
 - C. RC coupling
 - D. LC coupling

- v. An ideal op-amp has:.
 - A. Infinite gain
 - B. Zero input impedance
 - C. High output impedance
 - D. Finite bandwidth

- vi. The decimal equivalent of binary number 1011 is:
- A. 9
 - B. 10
 - C. 12
 - D. 13

Q2) Answer the following Questions.

- a. Explain construction and working of PN junction diode with neat diagram. **[6]**
- b. Describe construction and working of LED. **[6]**
- c. Explain Full wave rectifier with Shunt Capacitor Filter, draw its associated waveforms note the applications and advantages. **[6]**

Q3) Answer the following Questions.

- a. Explain the construction and working principal of NPN transistor. **[6]**
- b. Explain the voltage divider biasing method. **[6]**
- c. Draw and explain the circuit diagram of a single-stage CE amplifier. Describe its working, role of each component and frequency response. **[6]**

Q4) Answer the following Questions.

- a. Discuss block representation of Op-amp. **[6]**
- b. Discuss the De- Multiplexer and explain 1:4 De- Multiplexer with its truth table. **[6]**
- c. Implement NAND and NOR as universal gate with its truth table. **[6]**

Q5) Answer the following Questions.

- a. Compare HWR, Center Tapped FWR & Bridge FWR. **[6]**
- b. Draw and explain two stages RC coupled CE amplifier with its frequency response and list its advantages and dis-advantages. **[6]**
- c. Explain Op-amp as differentiator and comparator circuit. **[6]**

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -

This Question Paper may be distributed for following Subjects as common code.

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