Seat No.

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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.
सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

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