



C14-EC-302

4238

**BOARD DIPLOMA EXAMINATION, (C-14)**  
**OCT/NOV—2017**  
**DECE—THIRD SEMESTER EXAMINATION**  
**ELECTRONIC DEVICES AND CIRCUITS**

Time : 3 hours ]

[ Total Marks : 80

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**PART—A**

3×10=30

- Instructions :** (1) Answer **all** questions.  
(2) Each question carries **three** marks.  
(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Why is *N-P-N* transistor more popular than *P-N-P* transistor?
2. Define the operating point.
3. What is the need for biasing in amplifiers?
4. Classify the amplifiers based on frequency.
5. Define positive feedback and negative feedback.
6. What is a class B power amplifier?
7. Explain the condition for an amplifier to work as an oscillator.

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8. Distinguish\* between LED and LCD.
9. What is meant by CMOS FET?
10. Explain the working of transistor switch driving a relay.

**PART—B**

10×5=50

**Instructions :** (1) Answer *any five* questions.  
 (2) Each question carries **ten** marks.  
 (3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. Explain the construction and working of JFET.
12. Explain the self-bias technique. How is stabilization of operating point achieved in this technique?
13. Explain the operation of two-stage RC coupled amplifier with neat circuit and draw its frequency response.
14. (a) Show that the gain of feedback amplifier is
 
$$A_f = \frac{A}{1 + A}$$
 6  
 (b) Why voltage amplifier cannot be used as power amplifier? 4
15. (a) Draw the circuit diagram of tuned collector oscillator and explain. 6  
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 (b) Explain the working of harmonic generator. 4
16. Explain the principle of working of varactor diode and draw its characteristics.
17. Explain the principle, construction and working of photodiode.
18. Explain the working of transistor series voltage regulator and list its disadvantages.

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