



4237

BOARD DIPLOMA EXAMINATION, (C-14)

OCT/NOV-2016

DECE-THIRD SEMESTER EXAMINATION

ELECTRONIC DEVICES AND CIRCUITS

Time : 3 hours ]

[ Total Marks : 80

PART-A

3x10=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. List the advantages of JFET over BJT.
2. What is the purpose of biasing a device?
3. What is the need of multistage amplifier?
4. What is thermal runaway?
5. What is the need of power amplifier?
6. Draw circuit diagram of Colpitts oscillator.
7. Compare between voltage and power amplifiers.
8. What are the applications of LED?

- \* 9. List the applications of photovoltaic cells.
10. Draw a transistor circuit to drive 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. (a) Explain the working of NPN transistor. 5  
 (b) Draw and explain drain characteristics of JFET. 5
12. (a) Explain operation of two-stage transformer coupled amplifier. 5  
 (b) Define stability factor and derive expression of CE configuration. 5
13. (a) Explain the concept of DC load line. 5  
 (b) Draw and explain transistor CE amplifier. 5
14. Explain the working of transistor push-pull amplifier with a neat circuit diagram. 4+6
15. (a) Draw and explain the working of RC phase-shift oscillator. 7  
 (b) List the remedies for instability in oscillator. 3
16. Explain the construction and principle of operation of depletion type *n*-channel MOSFET. 3+7
17. Explain the construction and working of phototransistor and draw its characteristics. 3+7
18. Explain the operation of transistor series regulator with a neat circuit diagram. 3+7

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