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C16–EE–305

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BOARD DIPLOMA EXAMINATION, (C–16)

OCT/NOV—2017

DEEE—THIRD SEMESTER EXAMINATION

ELECTRONICS ENGINEERING—I

Time : 3 hours] [*Total Marks* : 80

PART—A 10×3=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. Define P-type and N-type semiconductors.

2. Draw the circuit symbols of *P-N* junction diode, *P-N-P*, *N-P-N* transistor.

3. Compare half-wave, full-wave rectifier over the following criteria :

(a) Efficiency

(b) Ripple factor

(c) PIV

4. State the need for filter circuit in DC power supplies.

5. Mention the applications of LED's and Opto couplers.

6. How does UJT differ from FET?

7. Define thermal runaway.

8. What is the necessity of cascading amplifiers?

9. List the applications of emitter follower.

10. Distinguish between degenerative and regenerative feedback.

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)* Draw the input and output characteristics of transistor in common emitter configuration and explain. 8

(b) Define for CB configuration. 2

12. State the need of voltage regulation in regulated power supplies. Describe the working of zener voltage regulator.

13. Draw the *V-I* characteristics of UJT and explain how UJT acts as a negative resistance device.

14. *(a)* Explain the construction and working of photo diode with its characteristics. 6

(b) Explain the working principle of LED. 4

15. *(a)* Draw a practical transistor amplifier circuit and explain the function of each component. 6

(b) Classify amplifiers on the basis of *(i)* frequency and *(ii)* function.

16. *(a)* Explain the concept of DC load line. 5

(b) Draw the circuit of transformer coupled amplifier and its frequency response. 3+2=5

17. Draw the circuit of two stage RC coupled amplifier and explain its working and draw its frequency response.

18. Explain the working of single-turned amplifier with circuit diagram and frequency response.

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