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C14–EE–305

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BOARD DIPLOMA EXAMINATION, (C–14)

MARCH/APRIL—2017

DEEE—THIRD SEMESTER EXAMINATION

ELECTRONICS—I

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

PART—A 3×10=30

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

1. Define terms tolerance and power rating with respect to a resistor.

2. Define self-inductance and list the factors affecting the inductance of a coil.

3. Distinguish between intrinsic and extrinsic semiconductors.

4. Explain the need of filter circuit in a regulated power supply.

5. State the advantages of full-wave rectifier over half-wave rectifier.

6. Draw the symbolic representations of *(a)* photodiode, *(b)* photo-transistor and *(c)* solar cell.

7. Mention the applications of FET.

8. State the need of DC biasing for an amplifier.

9. Define the stability factor 'S'.

10. Write the necessity of cascading of amplifiers.

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)* Describe the construction and working of carbon potentiometers. 5

(b) Compare carbon potentiometers and wire-wound potentiometers. 5

12. Explain the working of *p-n* junction diode in *(a)* forward bias and *(b)* reverse bias modes.

13. State the need of voltage regulation in regulated power supplies. With neat circuit diagram, describe the working of Zener voltage regulator. 3+7

14. Draw the two transistor analogy of SCR and explain its working. Draw its *V-I* characteristics.

15. Draw the *V-I* characteristics of UJT and mark different points on characteristics. Explain how UJT acts as a negative resistance device. 4+6

16. Draw a practical transistor amplifier circuit and explain the function of each component.

17. Draw the circuit of two-stage transformer-coupled amplifier and explain its working.

18. *(a)* Classify amplifiers based on frequency, type of coupling and period of conduction. 5

(b) Compare different types of coupled amplifiers. 5

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