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C14–EE–305

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BOARD DIPLOMA EXAMINATION, (C–14)

MARCH/APRIL—2016

DEEE—THIRD SEMESTER EXAMINATION

14093-EC-014

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. State the properties of resistance.

2. Define *(a)* self-inductance and *(b)* coefficient of coupling.

3. Write two differences between *P*-type and *N*-type semiconductors.

4. List different types of filters.

5. Draw the circuit of half-wave rectifier.

6. Draw the symbols of SCR, UJT, Opto-Coupler.

7. List the applications of LED.

8. Define thermal runaway.

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9. List the causes of instability of a transistor.

10. Name different types of coupling methods in 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)* Define resistance.

(b) Explain the color coding of a resistance. 2+8=10

12. Explain the behaviour of PN junction diode under forward and reverse bias conditions. 5+5=10

13. Explain the working of full-wave bridge rectifier with circuit diagram.

14. *(a)* Compare between FET and BJT.

(b) Explain the construction and working of FET. 4+6=10

15. By giving constructional details, explain the working of SCR.

16. How stabilization of operating point is achieved in self-bias method of transistor biasing? Explain.

17. *(a)* Classify amplifiers based on *(i)* frequency and *(ii)* no. of stages.

(b) Define *(i)* bandwidth, *(ii)* frequency response and *(iii)* decibel gain. 4+6=10

18. Draw the circuit of RC-coupled amplifier and explain its working.

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