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C14–EE–305

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BOARD DIPLOMA EXAMINATION, (C–14)

SEPTEMBER/OCTOBER - 2020

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) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. State the properties of a resistance of a resistor.

2. Define self-inductance and mutual inductance.

3. Compare the performance characteristics of a transistor in CB and CE configurations.

4. List the different types of filters.

5. Draw Zener diode regulator circuit.

6. Draw the *V-I* characteristics of SCR.

7. List the applications of optocoupler.

8. List the causes for instability of bias in transistor amplifier.

9. State the necessity of biasing.

10. Classify amplifiers based on number of stages.

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)* Compare the features of carbon and wirewound potentiometers. 5

(b) List the factors affecting the value of capacitance of a capacitor. 5

12. Explain the formation of *N-P-N* transistor with a neat sketch.

13. Draw the circuit of full-wave bridge rectifier and explain its working.

14. Explain the working of phototransistor and draw its *V-I* characteristics.

15. Explain the construction of solar cell and its working.

16. Draw the circuit of transistor amplifier circuit and explain its operation.

17. Draw the circuit of transformer coupled CE amplifier and explain its working.

18. *(a)* Define bandwidth and gain in terms of decibel. 4

(b) Draw the frequency response of RC coupled amplifier and indicate the gain, bandwidth, upper cut-off and lower cut-off frequencies. 6

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