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C09–EE–306

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BOARD DIPLOMA EXAMINATION, (C–09)

OCT/NOV—2014

DEEE—THIRD SEMESTER EXAMINATION

ELECTRONICS ENGINEERING

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. Draw the circuit diagram of a half-wave rectifier. 3

2. State the need for filter in power supply circuits. 3

3. *(a)* Draw the input and output waveform of centre tapped full-wave rectifier. 1½

(b) Draw the equivalent circuit of UJT. 1½

4. Draw the symbols of *(a) n*-channel FET, *(b)* LED and *(c)* photo-diode. 3

5. List any three applications of LED. 3

6. Draw collector-to-base bias circuit. 3

7. Classify amplifiers based on frequency and coupling. 3

8. Draw the circuit diagram of class-A power amplifier. 3

9. State the Barkhausen's conditions for sustained oscillations. 3

10. List the applications of CRO. 3

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. Explain the working principle of bridge rectifier with waveforms. 10

12. Explain the construction and working principle of JFET. 4+6

13. *(a)* Explain the potential divider biasing (self-bias) method. 6

(b) List the causes for instability of biasing in a transistor. 4

14. Explain the operation of two-stage RC coupled amplifier. Draw its frequency response. 8+2

15. *(a)* List the advantages of negative feedback in amplifiers. 5

(b) Compare voltage and power amplifiers. 5

16. Explain the operation of operational amplifier as *(a)* summer and *(b)* integrator. 5+5

17. Explain the working principle of Colpitts oscillator. 10

18. Draw and explain the internal block diagram of 555 timer IC. 4+6

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