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C16-EC–302

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BOARD DIPLOMA EXAMINATION, (C-16)

JUNE/JULY—2022

DCE - THIRD SEMESTER EXAMINATION

ELECTRONIC CIRCUITS

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. What is the need for proper biasing of a transistor?

2. Explain thermal runaway.

3. Draw the practical transistor CE amplifier.

4. Draw the small signal model of a FET.

5. Explain the need for multistage amplifier.

6. List the types of power amplifiers based on the period of conduction.

7. State the condition for an amplifier to work as an oscillator.

8. List the applications of clippers.

9. Draw the circuit diagram for RC integrator with waveforms.

10. List the applications of varactor diode.

PART—B

10×5=50

Instructions : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. Explain DC load line and AC load line.

12. Draw and explain the working of self-bias circuit and list its advantages.

13. Explain the operation of two-stage RC coupled amplifier with circuit diagram and frequency response curve.

14. *(a)* Explain the concept of feedback.

(b) Draw and explain the block diagram of voltage series, current series, current shunt and voltage shunt feedback amplifiers.

15. Explain the working of class AB push pull amplifier circuit.

16. Explain the working of Colpitt's oscillator with a circuit diagram and write the expression for its frequency and condition for sustained oscillations.

17. *(a)* List different linear and non-linear wave shaping circuits. 3

(b) Give the classification of clippers. 3

(c) Explain the working of unbiased clipper circuits. 4

18. *(a)* Explain the working of opto-coupler with neat diagram and mention its applications.

(b) Explain the operation of transistor series voltage regulator with a neat sketch.

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