C20-EC-302

7240

BOARD DIPLOMA EXAMINATION, (C-20)

NOVEMBER/DECEMBER—2022

DECE – THIRD SEMESTER EXAMINATION

ELECTRONIC CIRCUITS—I

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

PART—A

3×10=30

Instruction : (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. Define operating point of a transistor amplifier.

2. What is the importance of heat sink?

3. Draw the circuit of practical single stage transistor CE amplifier.

4. State the need for multi stage amplifier.

5. State the concept of feedback in amplifiers.

6. List any three performance factors of power amplifier.

7. State the need for power amplifier.

8. List any three applications of class C amplifiers.

9. State the Barkhausen criteria in oscillators.

10. List any three advantages of the crystal oscillator over other types of oscillators.

PART—B

8×5=40

Instructions : (1) Answer **all** questions.

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

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

11. *(a)* Explain the fixed bias circuit of a transistor.

(OR)

(b) Explain collector to base bias circuit of a transistor.

12. *(a)* Explain with circuit diagram the working of direct coupled amplifier.

(OR)

(b) Explain with circuit diagram the working of two-stage transformer coupled amplifier.

13. *(a)* Explain the effect of negative feedback on gain, bandwidth, input and output impedances of an amplifier.

(OR)

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

14. *(a)* Explain with circuit diagram the working of complementary symmetry push-pull power amplifier.

(OR)

(b) Explain with circuit diagram the working of class-A amplifier.

15. *(a)* Explain with a circuit diagram the working of transistor crystal oscillator.

(OR)

(b) Explain with a circuit diagram the working of RC phase shift oscillator.

PART—C

10×1=10

Instructions : (1) Answer the following question.

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

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

16. Why self bias circuit has more practical importance than other biasing circuits?

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