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C20-EC-302

7240

BOARD DIPLOMA EXAMINATION, (C-20)

JUNE/JULY—2022

DECE - THIRD SEMESTER EXAMINATION

ELECTRONIC CIRCUITS - 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. Define operating point of transistor amplifier.
2. State the need for stabilization.
3. Draw the circuit diagram of practical single stage transistor CE amplifier.
4. State the need for multistage amplifier.
5. Give the concept of feedback in amplifiers.
6. List any three performance factors of power amplifier.
7. State the need for power amplifiers.
8. Compare efficiencies of class A, class B and class C power amplifiers.
9. Define Barkhausen criterion.
10. Classify oscillator circuits based on frequency.

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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 concept of DC and AC load lines.

(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 the circuit diagram the working of Darlington pair.

13. (a) Derive the expression for the gain of negative feedback amplifier.

(OR)

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

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

(OR)

(b) Draw the circuit diagram of single tuned amplifier. Also give its frequency response curve.

15. (a) Explain with a circuit diagram the working of Colpitts oscillator.

(OR)

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

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PART—C

10×1=10

- Instructions :** (1) Answer the following question.
(2) Question carries **ten** marks.
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

16. Why fixed bias circuit has poor operating point stability over other biasing circuits?

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