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C20-AEI-302

7215

BOARD DIPLOMA EXAMINATION, (C-20)

JUNE/JULY—2022

DAEI - 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. List any three advantages of JFET over BJT.
2. State the principle of operation of CMOSFET.
3. List the types of biasing circuits.
4. Define stability factors S and S_v .
5. Draw the circuit of Direct Coupled Amplifier.
6. List any three differences between negative and positive feedback.
7. List any three differences between voltage amplifiers and power amplifiers.
8. State the Barkhausen criterion conditions for an amplifier to work as an oscillator.
9. State reasons for instability in oscillator circuits.
10. Define the term sweep voltage.

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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 working of N-channel JFET with drain and transfer characteristics.

(OR)

(b) Explain the construction and principle of operation of N-channel enhancement type MOSFET.

12. (a) Explain potential divider method of biasing.

(OR)

(b) Explain the selection of operating point (Q-point) on the load line.

13. (a) Explain the principle of operation of two-stage RC coupled amplifier with circuit diagram and draw its frequency response.

(OR)

(b) Explain the principle of operation of direct coupled amplifier with circuit diagram and draw its frequency response.

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

(OR)

(b) Explain the working of emitter follower circuit with diagram.

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

(OR)

(b) Explain the working of crystal oscillator with circuit diagram.

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PART—C

10×1=10

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

- 16.** Derive the expression for frequency of oscillations of wein bridge oscillator.

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