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C20-AEI–302

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BOARD DIPLOMA EXAMINATION, (C-20)

FEBRUARY/MARCH — 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 the types of MOSFETs.

2. List any three applications of FET.

3. State the need for proper biasing in amplifier circuits.

4. List the stabilization techniques.

5. Classify the amplifiers based on frequency.

6. State any two merits of emitter follower circuit.

7. List three applications of power amplifier.

8. State the Barkhausen criterion conditions for an amplifier to work as an oscillator.

9. State the remedies for instability in oscillator circuits.

10. Draw the circuit diagram of Schmitt trigger using transistor.

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 principle of operation of N-channel enhancement type MOSFET with drain and transfer characteristics.

(OR)

(b) Explain the construction and principle of operation of C-MOSFET.

12. *(a)* Explain the basic CB amplifier with necessary waveforms.

(OR)

(b) Explain diode and thermistor compensation techniques.

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

(OR)

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

14. *(a)* Explain the principle of negative feedback in amplifiers.

(OR)

(b) Explain the push-pull power amplifier with circuit diagram.

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

(OR)

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

PART—C

10×1=10

Instructions : (1) Answer the following question.

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

(3) Answers 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 Wien bridge oscillator.

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