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BOARD DIPLOMA EXAMINATION, (C-20)

OCTOBER/NOVEMBER—2023

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. Draw the symbols of P-channel and N-channel JFET.

2. List the types of MOSFETs.

3. List the types of biasing circuits.

4. Define the term 'stabilization'.

5. List the three types of couplings used in amplifiers.

6. Classify negative feedback amplifiers.

7. List any three applications of power amplifiers.

8. List the essentials of the oscillator.

9. List the Barkhausen criterion conditions for an amplifier to work as an oscillator.

10. Classify multivibrators.

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 construction and working of N-channel JFET.

(OR)

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

12. *(a)* Explain the transistor as an amplifier in CE mode.

(OR)

(b) Determine the Q-point on the DC load line.

13. *(a)* Classify the amplifiers based on frequency and period of conduction.

(OR)

(b) Explain the principle of operation of two stage transformer coupled amplifier with circuit diagram.

14. *(a)* Explain the block diagram arrangements of voltage shunt and current series negative feedback amplifiers with diagram.

(OR)

(b) Explain the circuit of push pull power amplifier.

15. *(a)* Explain the working of Wein bridge oscillator with circuit diagram.

(OR)

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

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. Derive the expression for the frequency of oscillations of RC phase shift oscillator circuit and also state its conditions of sustained oscillations.

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