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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, NOVEMBER - 2023

ELECTRONIC DEVICES AND CIRCUITS

[Maximum marks: 100] [Time: 3 Hours]

PART – A
Maximum marks: 10

I (Answer ***all*** the questions in one or two sentences. Each question carries **2** marks)

1. Define operating point.
2. List the different methods inter stage coupling.
3. What are the applications of push pull amplifier?
4. List different types of MOSFET.
5. State the condition for proper integration and differentiation circuits. (5 x 2 = 10)

PART – B
Maximum marks: 30

II (Answer any ***five*** of the following questions. Each question carries **6** marks)

1. Explain the principles of operation of transistor amplifier in CE configuration.
2. Compare the performance of RC, transformer and direct coupled amplifier.
3. Derive the expression for resonant frequency of a series resonant circuit.
4. Classify power amplifiers.
5. Compare BJT and FET.
6. Explain the operation of UJT with the help of structure and characteristics.
7. Explain the Barkhausen criterion for oscillators. (5 x 6= 30)

PART – C
Maximum marks: 60

(Answer ***one full*** question from each unit**.** Each full question carries **15** marks)

UNIT –I

III. (a) Explain the working of transformer coupled amplifier with circuit diagram and frequency response curve. (9)

(b) Explain about fixed and voltage divider bias. (6)

OR

IV. (a) With the help of neat sketch explain the working of emitter follower. (7)

(b) Explain the concept of multi stage amplifier. (8)

UNIT-II

V. (a) With the help of circuit diagram and frequency response curve explain the operation of a single tuned amplifier. (9)

(b) List the advantages and disadvantages of a push pull amplifier. (6)

OR

VI. (a) Explain the operation of single ended power amplifier. (8)

(b) State the importance of heat sink and heat dissipation in power amplifier. (7)

UNIT-III

VII. (a) Derive the expression for gain of negative feedback amplifier. (9)

(b) Explain the working principles and construction of JFET. (6)

OR

VIII. (a) Explain the working of UJT relaxation oscillator. (7)

(b) Explain the working principle and construction of depletion type MOSFET. (8)

UNIT-IV

IX. (a) With the help of neat sketch explain the working of transistorized RC phase shift oscillator. (9)

(b) Describe the working of Schmitt trigger with a diagram. (6)

OR

X. (a) Explain the operation of a mono stable multi vibrator with the help of a circuit diagram and waveforms. (9)

(b) List the applications of multi vibrators. (6)
