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A23 -07265

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, APRIL- 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 bandwidth of an amplifier.
2. Why the Q-point is stabilized?
3. Define Quality factor of a resonant circuit.
4. Define positive feedback.
5. Define LTP of a Schmitt trigger. (5 x 2 = 10)

PART – B

Maximum marks : 30

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

1. Draw and explain the frequency response curve of RC coupled amplifier.
2. Explain how impedance matching is done with a step down transformer.
3. With circuit diagram, derive the expression for the resonant frequency of a parallel resonant circuit.
4. Derive the expression for the gain of a negative feedback amplifier.
5. Compare BJT and FET.
6. Explain the basic principle of operation of oscillators.
7. Draw the circuit diagram and explain the working of RC Differentiator. (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) With the help of circuit diagram and waveform explain the principle of operation of an amplifier in CE configuration. (9)

(b) Compare RC coupled, transformer coupled and direct coupled amplifiers. (6)

OR

IV.(a) With a neat diagram explain the working principle of transformer coupled amplifier. (9)

(b) Draw the circuit diagram and explain the working of Emitter follower. (6)

UNIT-II

V.(a) Explain the operation of single tuned amplifier with a circuit diagram. (8)

(b) Draw the circuit and explain the operation of single ended power amplifier. (7)

OR

VI.(a) With circuit diagram explain the working of Class B Push Pull power amplifier. (8)

(b) With circuit diagram and response curve explain the behaviour of series resonant circuit. (7)

UNIT-III

VII. (a) Explain the effects of negative feedback on input impedance and output impedance of an amplifier. (8)

(b) With a schematic diagram explain the working principle of UJT. (7)

OR

VIII.(a) With a schematic diagram explain the construction and working principle of JFET. (8)

(b) Draw the circuit and explain the operation of a typical current feedback amplifier. (7)

UNIT-IV

IX. (a) With a circuit diagram explain the working of RC phase shift oscillator. (8)

(b) Explain the working of astable multivibrator with a circuit diagram. (7)

OR

X. (a) With circuit diagram and waveforms explain the working of Schmitt Trigger. (8)

(b) Explain the operation of Hartley oscillator with a neat circuit diagram. (7)

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