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(Revision -2015)

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER – 2020

ELECTRONIC DEVICES AND CIRCUITS

[Maximum Marks: 75] [Time: 2.15 Hours]

PART-A

(Answer ***any three*** questions in one or two sentences. Each question carries 2 marks)

I. 1. Define load line and Q-Point.

2. Write the any two applications of Tuned amplifier.

3. Define Positive and negative feedback.

4. Define Piezo electric effect.

5. Define Pinch-off voltage in FET. (3 x 2 = 6)

PART-B

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

II 1. Describe Direct coupled amplifier with necessary diagram.

2. State the importance of impedance matching in power amplifier.

3. Describe Single ended power amplifier with necessary diagram.

4. Explain the effects of negative feedback.

5. Compare BJT and FET.

6. Explain the working of RC Phase shift oscillator using transistor.

7. Draw the circuit diagram of Monostable multivibrator and sketch the output waveform.

(4 x 6 = 24)

PART-C

(Answer ***any of the three units*** from the following. Each full question carries 15 marks)

UNIT – I

III (a) Explain Transformer coupled amplifier with frequency response curve (9)

(b) Explain the working of Emitter follower with relevant circuit diagram. (6)

OR

IV (a) Explain single stage common emitter amplifier with frequency response. (9)

(b) Derive the expression for the following for a common emitter transistor amplifier.

(i) Input impedance (ii) Current gain (iii) Voltage gain (6)

UNIT - II

V (a) Explain single tuned amplifier with frequency response. (9)

(b) Distinguish between voltage and power amplifier. (6)

OR

VI (a) Explain series and parallel resonant circuits also derive the expression for resonant frequency. (8)

(b) Explain the operation of Class B push pull power amplifier with circuit diagram. (7)

UNIT- III

VII (a) Explain the working principle and construction of N channel Depletion MOSFET. (8)

(b) Explain the operation of UJT relaxation oscillator with circuit diagram. (7)

OR

VIII (a) Derive the expression for gain in positive and negative feedback amplifier. (8)

(b) Draw and explain the constructional details of P channel JFET (7)

UNIT - IV

IX (a) Draw and explain the operation of astable multivibrator using BJT. (8)

(b) Explain transistorized wien bridge oscillator with circuit diagram. (7)

OR

X (a) Explain the operation of Schmitt trigger with circuit diagram. (8)

(b) Explain the operation of colpitts oscillator with necessary diagram. (7)
