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(REVISION — 2015)

Reg. No.....

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2019

ELECTRONIC DEVICES AND CIRCUITS

[*Time* : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

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

1. Define Operating point.
2. Write the relationship between resonant frequency and bandwidth.
3. Compare BJT and FET.
4. Define Barkhausen criteria for oscillation.
5. Define piezoelectric effect. (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Explain the working of Emitter Follower.
2. Describe frequency response and bandwidth of an amplifier.
3. Why heat sinks are necessary for power transistor.
4. List the comparison between voltage and power amplifier.
5. Describe the advantages of negative feedback.
6. Prove that output of RC integrator is proportional to the integral of the input.
7. Draw the circuit diagram and waveforms of Astable Multivibrator. (5×6 = 30)

Marks

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 single stage transistor amplifier in CE configuration. 8

(b) Describe dc load line with graph. 7

OR

IV (a) Explain the working of transformer coupled multistage amplifier. 8

(b) Describe fixed transistor biasing in CE configuration. 7

UNIT — II

V (a) Explain the operation of single tuned amplifier with frequency response. 8

(b) Describe series resonance circuit with waveforms. 7

OR

VI (a) Explain the operation of class B push pull amplifier. 7

(b) Describe classification of power amplifier with waveforms. 8

UNIT — III

VII (a) Derive the expression for the gain of negative feedback amplifier. 8

(b) Explain the working of relaxation oscillator using UJT. 7

OR

VIII (a) Describe the construction of N channel depletion MOSFET. 7

(b) Describe the types of negative feedback in amplifiers. 8

UNIT — IV

IX (a) Explain the working of RC phase shift oscillator. 8

(b) List the advantages and application of crystal oscillator. 7

OR

X (a) Explain the working of Hartley oscillator with diagram. 8

(b) Explain the working of Schmitt trigger with circuit diagram. 7