

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/  
MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2017

**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 bandwidth of an amplifier.
2. Write the advantages of push pull amplifier.
3. Define intrinsic stand off ratio in UJT.
4. List different types of MOSFETs.
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 need for stabilization of operating point.
2. Derive the expression for the resonant frequency of series and parallel resonant circuits.
3. Compare voltage and power amplifier.
4. Derive the expression for the gain of feedback amplifier.
5. Draw and write the constructional details of JFET.
6. Describe the working of Schmitt trigger circuit with a diagram.
7. Explain RC integrating circuit with a diagram.

(5×6 = 30)

## PART — C

(Maximum marks : 60)

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

## UNIT — I

- III (a) Explain with a circuit diagram the principle of single stage common emitter amplifier with voltage divider bias. 9
- (b) Compare the performance of RC coupled, transformer coupled and direct coupled amplifiers. 6

OR

- IV (a) With a circuit diagram explain the working of emitter follower. 7
- (b) Derive the expression for voltage gain, current gain, power gain and input impedance of common emitter configuration. 8

## UNIT—II

- V (a) Explain the operation and frequency response of single tuned amplifier with necessary diagrams. 9
- (b) State the importance of heat sinks and heat dissipation in power amplifiers. 6

OR

- VI (a) Explain the operation of class B push pull amplifier with circuit diagram. 9
- (b) Describe the importance of impedance matching in power amplifiers. 6

## UNIT — III

- VII (a) Explain the working principle and construction of depletion type MOSFET. 10
- (b) Compare BJT and FET. 5

OR

- VIII (a) With necessary diagrams explain the working of UJT relaxation oscillator. 9
- (b) Explain the effects of negative feedback. 6

## UNIT — IV

- IX (a) With a circuit diagram explain the working of transistorized wien bridge oscillator. 9
- (b) Define LTP and UTP in Schmitt trigger circuit. 6

OR

- X (a) Explain the operation of bi stable multivibrator circuit with necessary diagrams. 9
- (b) List the advantageous and applications of crystal oscillator. 6