

Roll No.

Total Pages : 03

BT-3/D-23

43167

ELECTRONICS FUNDAMENTALS

ES-201A

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Discuss the forward bias, reverse bias and no bias condition of a P-N junction diode. Draw V-I characteristics for each.
- (b) How a Zener diode act as a Voltage Regulator ?
Discuss the operation in detail. 15
2. (a) Discuss with the help of VI characteristics, how an Avalanche breakdown differs from a Zener breakdown.
- (b) Write a short note on Light emitting diode. 15

Unit II

3. (a) Discuss the operation of a transistor in PNP mode.
(b) Discuss the common emitter mode of configuration with its characteristics. **15**
4. (a) What is Biasing ? Discuss in detail the base resistor method of biasing.
(b) What is transistor load line ? Discuss DC load line in detail. **15**

Unit III

5. (a) What is Barkhausen criterion of oscillations ? Derive its equation.
(b) What is Wein bridge Oscillator ? Discuss its operation in detail. **15**
6. Write short notes on the following : **15**
(a) Crystal oscillator
(b) Tuned collector oscillator.

Unit IV

7. (a) Discuss the terms :
Sensitivity, Resolution, Repeatability and Drift in context to electronic measurement system.
(b) What is an error ? Discuss the various types of errors encountered in an electronic measurement system. **15**

8. (a) What is a Transducer ? Discuss the characteristics and selection criterion for transducer measurement.
- (b) What is Data acquisition system ? With the help of a block diagram, explain its working. 15

