22220

21718

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data, if necessary.

Marks

1. Attempt any FIVE of the following : **10**

(a) Give the classification of components.

(b) State the material used for resistors.

(c) List any two types of a capacitor.

(d) Write any two application of magnetic materials.

(e) Give the classification of semi-conductor.

(f) Define rectifiers.

(g) Draw symbol of :

(i) PN junction diode (ii) Zener diode

2. Attempt any THREE of the following : **12**

(a) Compare linear potentiometer and logarithmic potentiometer.

(b) Explain air ganged capacitor with its constructional diagram.

(c) Explain the colour coding scheme for capacitors.

(d) Compare low pass filter and high pass filter.

3. Attempt any THREE of the following : **12**

(a) Show the hysteresis curve for soft and hard magnetic materials.

(b) How inductors are classified on the basis of frequency ?

(c) Explain the construction of photodiode with sketches.

(d) An ac supply of 230 V is applied to half wave rectifier circuit through a transformer turns ratio 10 : 1. Find d.c. output voltage and PIV of a diode.

4. Attempt any THREE of the following : **12**

(a) Define :

(i) ECG (ii) EEG

(b) Describe basic medical instrumentation system with its sketch.

(c) Write the colour codes for following resistors :

(i) 560 kΩ, ± 05 % (ii) 43 kΩ, ± 10%

(d) Classify capacitors. Also state different materials used for capacitors.

(e) Distinguish between Light Dependent Resistor (LDR) and Temperature Dependent Resistor (TDR).

5. Attempt any TWO of the following : **12**

(a) Explain construction of P-N junction diode. Also draw its V-I characteristics.

(b) List the applications of zener diode and explain any one in brief.

(c) Describe different sources of biomedical signals.

6. Attempt any TWO of the following : **12**

(a) Draw bridge rectifier circuit and explain its working with neat waveforms.

(b) Classify medical equipments. Give two examples of each.

(c) List different types of losses in inductors. Explain any one in detail.
