

22232

22232

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.
 - (5) Answer each section on a separate answer sheet.

Marks

SECTION – I

1. Attempt any SIX of the following : **12**

- (a) Define (i) Permeability, (ii) Reluctance.
- (b) Draw B-H Curve.
- (c) Define RMS value and average value with respect to sinusoidal ac waveform.
- (d) Draw power triangle for inductive load.
- (e) Define FHP motor.
- (f) Write emf equation of transformer. State the meaning of each notation on it.
- (g) List starting methods of induction motor.

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

- (a) Compare Electric and Magnetic circuit on basis of
 - (i) Definition
 - (ii) Relation between flux and current
 - (iii) Analogy
 - (iv) Diagram



- (b) Draw and explain R-C circuit.
- (c) Explain the construction and working of principle single phase AC motor. State its two applications.
- (d) State relation between line current and phase current, line voltage and phase voltage of star and delta connected system.
- (e) Draw neat constructional diagram of auto transformer and state its advantages and applications.

3. Attempt any TWO of the following :

12

- (a) Explain with neat diagram statically and dynamically induced emf and defined self and mutual inductance.
- (b) An ac voltage is represented by $V = 141.4 \sin 377 t$. Determine
 - (i) rms value of voltage
 - (ii) Angular velocity
 - (iii) Frequency
 - (iv) Time period
 - (v) Average value
 - (vi) Form factor
- (c) Explain the construction & working principle of the split phase induction motor with neat schematic diagram.

SECTION – II

4. Attempt any FIVE of the following :

10

- (a) Define passive component and classify it.
- (b) Draw the symbol of resistor and state the SI unit of resistor.
- (c) Define filters and state its types.
- (d) Define (i) PIV, (ii) Ripple factor.

- (e) Compare NPN and PNP transistor.
- (f) Draw o/p VI characteristics of transistor in CE configuration & show active region & saturation region.

5. Attempt any THREE of the following :

12

- (a) Explain ideal and practical current source with suitable diagram.
- (b) Explain the transistor as Amplifier.
- (c) Find the value of resistor from the given colour code
 - (i) Orange Red Brown Silver
 - (ii) Green Orange Orange Silver.
- (d) Compare CB, CE, CC, configuration of BJT.

6. Attempt any TWO of the following :

12

- (a)
 - (i) Explain Zener diode with V-I characteristics.
 - (ii) Explain Regulated power supply.
 - (b) Explain full wave rectifier and half wave rectifier with suitable diagram and waveform.
 - (c)
 - (i) Compare Analog IC's with digital IC's.
 - (ii) Define any three signal parameters with suitable waveform.
-

