

22310

23124

3 Hours / 70 Marks

Seat No.

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- Instructions* –
- (1) All Questions are *Compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Answer each section on separate answer Book.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

SECTION - I

1. Attempt any SIX of the following: 12
- a) Define
 - i) MMF
 - ii) Permiability
 - b) Define the term cycle and frequency.
 - c) Draw sinusoidal waveform and show the various quantities associated with it.
 - d) Draw the power triangle. State its significance.
 - e) State two applications of shaded pole motor.
 - f) Define FHP motor.
 - g) Define transformation ratio of transformer.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Compare magnetic and electric circuit. (four points)
 - b) Draw a balanced 3 phase star connected load. Show various line and phase quantities on it. Also write relationship between line and phase values of voltage and current.
 - c) Derive the emf equation of single phase transformer.
 - d) Explain the working of autotransformer. State its any two applications.
 - e) Explain construction of single phase motor with working principle.
- 3. Attempt any TWO of the following:** **12**
- a) Explain self induced emf and mutually induced emf.
 - b) Explain the working of single phase transformer.
 - c) A capacitor of $30\mu\text{F}$ is connected in series with resistor of 120Ω . The circuit supplied with AC supply of 230v , 50HZ . Determine :
 - i) Capacitive reactance
 - ii) Impedance
 - iii) Current
 - iv) Circuit power
 - v) Power factorDraw circuit diagram.

SECTION - II

- 4. Attempt any FIVE of the following:** **10**
- a) Draw the symbol of resistor and capacitor. State its units.
 - b) List different types of electronic components with examples.
 - c) State the need of filter circuit in rectifier circuit. State its types.
 - d) Define PIV and ripple factor.
 - e) Draw the symbol of PNP and NPN transistor.
 - f) Draw the diagram showing the operating regions of transistor.

- 5. Attempt any THREE of the following:** **12**
- a) Compare Analog and Digital IC's.
 - b) Find the values of resistor from the given colour code
 - i) Orange, Red, Brown, silver
 - ii) Green, Orange, orange, silver
 - c) Explain the working of PN junction diode with suitable diagram.
 - d) Explain the construction of LED with suitable diagram.
- 6. Attempt any TWO of the following:** **12**
- a) Explain ideal and practical current source with suitable diagram.
 - b) Explain the full wave bridge rectifier with π filter. Draw its circuit diagram and wave form.
 - c) Explain the working of transistor as an amplifier, with suitable diagram.
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