

# 22373

**22223**

**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) Use of Non-programmable Electronic Pocket Calculator is permissible.
  - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

- 1. Attempt any FIVE of the following: **10****
- a) State relationship between line current and phase current for star and delta connection.
  - b) Define magnetic flux and write its unit.
  - c) State EMF equation of transformer and give meaning of each notation.
  - d) List types of fuses.
  - e) List types of starter.
  - f) State any two application of MCCB
  - g) Give the types of Enclosure.

P.T.O.

- 2. Attempt any THREE of the following: 12**
- a) Give classification of electric drives. State factors for selection of motor for different drives.
  - b) Give any two applications of
    - i) Digital multimeter
    - ii) Megger.
  - c) Explain working principle of MCB.
  - d) A 1- Phase, / KVA 230 /115 V transformer used in laboratory. Calculate
    - i) Primary winding current.
    - ii) Secondary winding current
    - iii) Turns Ratio and
    - iv) Current ratio
- 3. Attempt any THREE of the following: 12**
- a) Define followings terms.
    - i) Magnetic Circuit
    - ii) Reluctance
    - iii) Magneto Motive Force (MMF)
    - iv) Magnetic Flux Density.
  - b) List advantages of AC quantity over DC quantity.
  - c) State principle of operation of three phase induction motor. Give any two applications of three phase induction motor.
  - d) Write function of safety tools used in electrical workshop (any four)
  - e) Describe working principle of DC ammeter.

- 4. Attempt any THREE of the following** **12**
- a) Write any two applications of each of the following
    - i) DC shunt motor.
    - ii) DC series motor.
  - b) Write color coding significance of electrical conductor for single phase and three phase supply.
  - c) Describe working principle of tachometer. Give any two application of tachometer.
  - d) Define
    - i) Maximum value
    - ii) Cycle
    - iii) Frequency
    - iv) Period
  - e) Compare electric and magnetic circuit.
- 5. Attempt any TWO of the following:** **12**
- a) Explain working principle of universal motor with neat sketch.
  - b) Compare auto transformer with two winding transformer.
  - c) Draw purely Inductive circuit with wave forms of voltage and current. Write equation of current and voltage.
- 6. Attempt any TWO of the following** **12**
- a) Draw purely resistive circuit with waveforms of voltage and current. Write equation of current and with phasor diagram.
  - b) Draw and explain B-H curve of magnetic material. Give two applications of statically induced emf.
  - c) Explain necessity of starter. Give any two applications of starter.
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