

**FUNDAMENTALS OF ELECTRICAL AND ELECTRONICS
ENGINEERING****Time Allowed : 3:00 Hours****Maximum Marks : 60****Notes:** (i) Attempt **all** the questions.

(ii) Students are advised to specially check the numerical data of question paper in both versions. If there is any difference in Hindi translation of any question, the students should answer the question according to the English version.

(iii) Use of pager and mobile phone by the students is not allowed.

- Q.1. Attempt **any two** parts of the following : [2×5=10]
(a) A 3 phase 500V, 50Hz induction motor with 6 poles develops 20 H.P. at 950 rpm with a power factor of 0.86 lagging. Mechanical losses amount to 1H.P. for this load. Calculate rotor copper loss.
(b) Explain different types of resistor and their use.
(c) Explain the block diagram of digital multimeter.
- Q.2. Attempt **any two** parts of the following : [2×5=10]
(a) Explain intrinsic and extrinsic semiconductor.
(b) Discuss the working of CRO along with a block diagram.
(c) Explain the working of MOSFET in detail.
- Q.3. Attempt **any two** parts of the following : [2×5=10]
(a) Give symbol and truth Table of basic gates.
(b) Draw and explain hysteresis loop.
(c) State Ohm's law and its limitations.
- Q.4. Attempt **any two** parts of the following : [2×5=10]
(a) Explain Average value, RMS value in A.C. circuits.
(b) Write short notes on polyphase system.
(c) Give brief idea of autotransformer.
- Q.5. Attempt **any two** parts of the following : [2×5=10]
(a) Give brief idea about operation of three phase induction motor.
(b) A 3 phase, 6 pole, 50Hz induction motor delivers 3.73 kW at 950 rpm. What is the stator input, if the stator loss is 250 W.
(c) Discuss the methods of starting of single phase induction motor.
- Q.6. Write down short notes on **any four** of the following : [4×2½=10]
(a) Form factor
(b) Permeability
(c) Faraday's law of induction
(d) FET
(e) Mutual inductance
(f) Ammeter