BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)

B. Tech. Sem - II COMPUTER SCIENCE & ENGINEERING : WINTER : 2024

SUBJECT: ELECTRICAL TECHNOLOGY

Day : Tuesday
Date : 26/11/2024

W-24027-2024

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N.B.

1) All questions are **COMPULSORY.**
2) Figures to the right indicate **FULL** marks.
3) Assume suitable data if necessary.

Q.1 State and explain right hand thumb rule. Define the following terms related to magnetic circuit. **(10)**
i) Magnetic field **ii)** Magnetic field strength **iii)** Magnetic field intensity **iv)** Absolute permeability **v)** Relative permeability.

OR

Q.1 a) State and explain Kirchoff's law for magnetic circuit. **(05)**

b) Compare electric and magnetic circuit in detail. **(05)**

Q.2 Draw sinusoidal, square and triangular AC waveform. Define and explain the concept of effective value, average value, form factor and peak factor related to AC waveform. **(10)**

OR

Q.2 a) Define and write down the units of active power, reactive power and apparent power. **(05)**

b) Discuss the causes of low power factor and list out the different methods for power factor improvement. **(05)**

Q.3 State and explain Faraday law of electromagnetic induction. Explain the concept of statically and dynamically induced e.m.f. in detail. **(10)**

OR

Q.3 Explain principle of operation and construction of single phase transformer. Derive e.m.f. equation of single phase transformer. **(10)**

Q.4 Sketch general layout of electrical power system and discuss the function of its elements. **(10)**

OR

Q.4 Discuss the necessity of three phase system. Sketch star and delta connection and write down line and phase voltage relationship. **(10)**

Q.5 Explain principle of electromechanical energy conversion in short. List out different types of D.C. machines and derive the e.m.f. equation of generator. **(10)**

OR

Q.5 Explain single phase induction motor with respect to following points: **(10)**
i) Principle of operation **ii)** Construction **iii)** Methods of self-starting **iv)** Application.

Q.6 a) Explain the concept of fuel cell in short. **(05)**

b) Discuss the concept of solar cell in short. **(05)**

OR

Q.6 Explain construction, working principle and applications of Nickel Cadmium Battery. **(10)**

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