BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)
Computer Science & Engineering-AI&ML
B. Tech. Sem - I :SUMMER : 2023
SUBJECT : ELECTRICAL TECHNOLOGY

Day : Friday
Time : 10:00 AM-01:00 PM
Date : 12-05-2023
S-23925-2023
Max. Marks : 60

N.B.

1) All questions are **COMPULSORY**.
2) Figure to the right indicate **FULL** marks.
3) Use of non – programmable **CALCULATOR** is allowed.
4) Draw neat and labelled diagram **WHEREVER** necessary.

Q.1 **a)** State and explain Kirchhoff's voltage and current law with their example. **(05)**

b) Define Hysteresis loop. Explain Eddy current loss. **(05)**

OR

Q.1 **a)** Define the following terms: **(05)**

(i) magnetic flux (ii) magnetic field

(iii) magnetic field strength (iv) absolute permeability

(v) relative permeability

b) Explain B-H curve for magnetic and non-magnetic materials. **(05)**

Q.2 **a)** Define the following terms: **(05)**

(i) Peak value

(ii) Average value

(iii) R.M.S.value

(iv) Peak-to Peak value

(v) Phasor diagram

b) Derive the expression for the resonance in Series A.C. circuits. **(05)**

OR

Q.2 **a)** A series R-L-C circuit having a resistance of 8 Ω, an inductor of 80 mH and a capacitance of 100 μF is connected across a 150 V, 50Hz supply. Calculate **(05)**

(i) Current

(ii) Power factor

(iii) Voltage across inductor.

(iv) Voltage across capacitor.

What will be the nature of power factor and why?

P.T.O.

Q.3 a) Differentiate between statically induced emf and dynamically induced emf. (05)

b) Derive an EMF equation of transformer with suitable notation. (05)

OR

Q.3 a) What is autotransformer? Explain with diagram (05)

b) Explain the working principle of single phase transformer and list the applications of transformer. (05)

Q.4 a) Distinguish between primary transmission and secondary transmission. (05)

b) Draw layout of distribution system. State the voltage levels at each stage. (05)

OR

Q.4 a) Distinguish between star and delta connection in 3 phase systems. (05)

b) What are the necessity and advantages of three phase system? (05)

Q.5 a) Calculate the speed of a 6 pole, 50Hz, 400V 3 phase induction motor when it is operating at a slip of 2%. (05)

b) What are the types of 3 phase induction motor? Explain any one in details. (05)

OR

Q.5 a) Explain working principle of single phase induction motor. (05)

b) Explain the construction and working of DC generator. (05)

Q.6 a) What are the steps involved in the maintenance of lead -acid battery? (05)

b) State various of batteries. Explain any one in brief. (05)

OR

Q.6 a) What is the principle of fuel cell?. State its types. (05)

b) Describe the charging methods used for storage batteries. What are the indications that confirms the Lead Acid battery is fully charged? (05)

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