BHARATI VIDYAPEETH INSTITUTE OF TECHNOLOGY
Question Bank (K-Scheme)

Name of subject: Elements of Electrical Engg.(EEE)   **Unit Test :I**
Subject code: 312315   **Course : EJ**
                                                           Semester: II

CHAPTER-1(Magnetic Circuits)

(2 Marks)

1. Define Reluctance .What is its unit?
2. Define i) Magnetic flux ii) Magnetic Flux density.
3. Define and state their unit i) Magnetomotive force(mmf) ii) permeability
4. State the Lenz's law. Give expression for the induced voltage.
5. State Faraday's law of Electromagnetic Induction.
6. State Fleming's right hand rule.
7. State Fleming's left hand rule.

(4 Marks)

8. Define Self Induced EMF and Mutually Induced EMF with neat sketch.
9. Compare Magnetic Circuit and Electric Circuit.
10. Compare series and parallel magnetic circuits.
11. Find reluctance, flux, M.M.F required and exciting current for an iron ring with 200 turns having diameter of 15 cm and 10 cm^2 cross sectional area if flux density 1 wb/m^2 and permeability of 500.

CHAPTER-2(A.C fundamentals for single phase and polyphase circuits)

(2 Marks)

12. Write any two advantages of AC over DC.
13. Define the terms related to AC i) Time period ii) frequency
14. Define the terms related to AC i) Instantaneous value ii) Angular frequency
15. Define Peak Factor and Form Factor.
16. Define leading and lagging phase difference.
17. An Alternating current is given by i=28.28sin(20πt) Find R.M.S value and Average value.
18. Define Inductive and capacitive reactance.

19. find capacitive reactance and current taken by 100 microfarad capacitor when it is connected across a 230V,50 Hz supply.
20. Define Phase Sequence and Draw 3- phase voltage waveform of a.c. supply with respect to time.
21. State the meaning of 3 phase Balanced and Unbalanced Load.

(4 Marks)

22. Define R.M.S. value and Average Value with their equations.
23. An alternating voltage is represented by the expression $v=25\sin(200\pi t)$ calculate
    i) Amplitude ii) time period iii) Angular frequency iv) Peak factor.
24. For Inductive circuit:
    i)   Draw the circuit diagram
    ii)   Write voltage and current equations
    iii)   Draw phasor diagram
    iv)   Draw Waveforms.
25. Write Advantages of polyphase system (three phase) over single phase system.
26. Draw star connected 3 phase system and state relation between phase and line voltage and phase and line current.
27. Three impendences each of 2ohm resistance and 2ohm inductive reactance are connected in delta across a 3 phase 400V ac supply. Determine i) phase current ii) line current iii) Phase voltage iv) power.

CHAPTER-3(Transformers and DC motors)

(2 Marks)
28. State working principle of transformer.
29. Define i) voltage ratio ii) Transformation ratio.
30. Write two applications of transformer.
31. Write two applications of DC shunt and D.C. series motors.
(4 Marks)
32. Derive the emf equation of transformer.
33. Compare Autotransformer with two winding transformer.
34. A single phase transformer has 200 turns on the primary and 100 turns on secondary. The load draws a current of 20A from secondary. If primary winding is connected to a 200 volt supply, determine i) primary current ii) secondary voltage.
35. List the main parts of D.C. motor. Give the function of any two parts.
36. Draw schematic diagram for DC series and DC shunt motor.

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