Vidyalankar

F.E. Sem. I

Basic Electrical and Electronics Engineering (BEE)

Viva Questions

Ch. 1 : D.C. Circuits :

1. Differentiate between active & passive elements.

or

State the 2 types of active elem. (Const. 'V' & const. 'I')

&

state the 3 types of passive elem. (R, L & C)

2. State the 3 types of D.C. sources.
3. State the 2 types of A.C. sources.
4. Define R, L, C, X_L & X_C alongwith their units.
5. State the Ohm's Law for D.C. Circuits.
6. State the " " " A.C. " .
7. State KCL & KVL for D.C. circuits.
8. State the difference between Mesh & Nodal Analysis.
9. What are limitations/disadvantages of Mesh Analysis?
10. What do you mean by linear elements? State their 3 types.
11. State & explain the Superposition, Thevenin's, M.P.T.T. & Norton's Theorems.
12. What is the application of M.P.T.T? (Public Adress System) Why is it not used for electrical machines like transformer?
13. Give/Write the proof of MPTT.
14. State the 2 types of electrical faults. (O.C. & S.C.)
15. Why X_L & X_C are not considered in D.C. Circuits?

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Ch. 2 : A.C. Circuits :

1. Prove that pure L & C do not consume any power.
2. Define Av & RMS values, Form & Peak Factors. State their expressions/values for an alternating current.
3. Define cycle, frequency & time period.
4. For an A.C., prove that RMS Value > A.V. Value.
5. " " " " " Peak Factor > Form Factor
6. Draw labelled V-Δ, Z-Δ & P-Δ for R-L, R-C, R-L-C (with $X_L > X_C$) R-L-C (with $X_C > X_L$) & a.c. series resonance circuit.
7. Define p.f. 4 ways. State its significance. State its min. & max. values.

or

State values of p.f. for pure R, pure L & pure C alonwith nature (i.e. lagging/leading)

8. Draw a neat labelled P-Δ for R-L/R-C circuit.
Mark on its sides the names, expressions & practical units of the respective powers.
9. Define Y, G & B alongwith their mathematical expressions.
10. Sketch the graphs of R v/s f, X_L v/s f, X_C v/s f, Z v/s f & I v/s f
11. Compare between Series & Parallel resonance.
12. Define dynamic impedance parallel resonance circuit
13. Define Q-factor & Bandwidth. State their expressions.

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Ch. 3: Three Phase Circuits:

1. Advantages of 3-φ circuits.
2. Compare between 3-φ Y & Δ connections
3. Draw typical phasor dgms for Y & Δ connections
4. State uses/applications of Y & Δ connections.
5. Draw a labelled total power Δ for 3-φ system.
6. Advantages of 2 watt-meter method

   or

   How can we measure power in 3-φ circuit with 2 wattmeters?
7. Why a single 3-φ system is more economical than three seperate 1-φ systems? Explain in brief.
8. State the expressions for total power P_T, total reactive power Q_T, p.f. in terms of the 2 wattmeter readings W_1 & W_2.
9. What precautions will you take if one of the two wattmeters say W_1 starts reading -ve?
10. How can you decide the nature of the 3-φ load from the readings W_1 & W_2 of the 2 wattmeters?

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Ch. 4: Transformer (Abbrivated as 'X^r')

1. State the principle of a 1-φ transformer.
2. State features of a 1-φ X^r.
3. Define ideal & practical X^r
4. State EMF equations.
5. Define turns ratio, voltage ratio & current ratio.
6. Draw phasor dgms of ideal & practical X^{rs} on no load.

7. Draw phasor dgms of a practical X^r supplying resistive, inductive & capacitive loads.

8. Define efficiency of a X^r

9. State the condition for max. efficiency & prove.

10. Define % Voltage regulation & state its practical values for inductive & capacitive loads.

11. State the purposes of O.C. & S.C. Tests of a X^r.

12. State & explain the 2 types of losses in a X^r.

13. Sketch/develop the equivalent ckt of a X^r w.r.t. py. & label the same.

14. How the eq. ckt helps in calculating the 4 parameters of the X^r viz. X_0, R_0, X_{01} & R_{01} ?

15. What will happen if we apply D.C. voltage on the py of a X^r instead of A.C. voltage ?

16. Why X^r rating is given in kVA & not in kW ?

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