

Question Bank (G scheme)

Name of subject: Electrical Engineering  
Subject code:17404  
Semester: IV

Unit Test :I  
Course : SYME

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**CHAPTER 1 Introduction to Electric Power System and AC Supply (20)**

**3marks Questions:**

1. Differentiate between AC and DC power supply.
2. Write meaning of each stage in electric power supply system.
3. State different types of powers in ac circuit with their units.

**4 marks Questions:**

4. Define RMS value, Average value, Frequency, Time period of ac quantity.
5. The current flowing in the circuit is  $i = 14.14 \sin(314t - \pi/6)$ . Calculate frequency, phase difference, Irms, Amplitude.
6. For RL series circuit
  - a. Draw circuit diagram
  - b. Voltage & current equation
  - c. Phase relation between voltage & current
  - d. Impedance Triangle
7. For RC series circuit
  - a. Draw circuit diagram
  - b. Voltage & current equation
  - c. Draw phasor diagram
  - d. Draw power triangle
8. When  $v = V_m \sin \omega t$ , write current equation, phase relation between voltage and current, nature of power factor for purely inductive and purely capacitive circuit. Also draw their phasor diagram.
9. When  $V_L = 400V$  and  $I_L = 4A$ , calculate phase voltage and phase current for star and delta connection.
10. A coil having  $10\Omega$  resistance and  $0.1H$  inductance is connected across  $230V$ ,  $50Hz$  ac supply. Calculate: a. Impedance b. Current c. Power factor d. Power absorbed by the coil.
11. A resistance of  $100\Omega$  and  $50\mu F$  capacitor is connected in series across  $230V$ ,  $50Hz$  supply. Find: a. The impedance b. Current in the circuit c. Power factor d. Voltage across capacitor.
12. Three resistance of  $15\Omega$  each are connected in star across 3 phase  $440V$  ac supply. Find phase current, line current, line voltage, phase voltage and power consumed.
13. Define inductive reactance, impedance, power factor, active power.

**CHAPTER 2 Measuring Instruments(06 marks)**

**3marks Questions:**

14. Write two applications of digital multimeter, clip on meter, wattmeter.

**4 marks Questions:**

15. Describe the working of PMMC with constructional diagram. Write one advantage and disadvantage of PMMC.
16. Describe attraction type moving iron meter with diagram.

## CHAPTER 4 Transformer (14 marks)

### 3marks Questions:

17. State working principle of transformer. Give its two applications.
18. Write main parts of single phase transformer and function of conservator and breather.
19. Why the transformer is always rated in KVA?
20. Derive emf equation of a transformer.

### 4 marks Questions:

21. A single phase transformer of 50Hz has maximum flux in core as 0.021Wb, the number of turns of primary being 460 and that on secondary is 52. The cross-sectional area of the core is  $20\text{cm}^2$ . Calculate maximum flux density, emf induced in primary and secondary windings of the transformer.
22. 3300/1100 volt, 50 Hz, 60 KVA single phase transformer has 300 turns in primary winding . Find turns in secondary winding and full load current of Primary and Secondary winding .
23. Draw auto transformer and differentiate between two winding transformer and auto transformer.
24. Define voltage ratio, transformation ratio, efficiency, voltage regulation of a transformer.
25. Describe the direct load testing to determine efficiency and voltage regulation of a single phase transformer.