Question Bank (G scheme)

Name of subject: Electrical Technology

Subject code   : 17331   **Unit Test: II**

Semester   : III   **Course   : CM/IF3G**

CHAPTER 3 AC SERIES CIRCUITS (10 marks for 2nd t half part)

3 marks

1) Draw circuit diagram for measurement of single phase power using dynamometer type wattmeter.
2) State types of power. Give their expressions and show them on power triangle.

4marks

3) A resistance of 5Ω, inductance of 10μH and capacitance of 100μF are connected in series across 230V, 50Hz ac supply. Calculate
    a. inductive reactance
    b. capacitive reactance
    c. impedance
    d. current

4) A circuit draws a current of 10A at a voltage of 200 V and its power factor is 0.8 lagging. Calculate:
    a. Active power
    b. Reactive power
    c. Apparent power.
    d. Also draw the power triangle.

CHAPTER 4 THREE PHASE CIRCUITS (14 marks)
3 marks

5) Draw a neat labeled sketch of three phase balanced star connected and delta connected systems, mark all line and phase voltages.

6) State relation between phase current and line current, phase voltage and line voltage for following systems:
    a. Star connected balanced system
    b. Delta connected balanced system.

4 marks

7) A three-phase 400 V, 50Hz, a.c. supply is feeding a three phase delta connected load with each phase having a resistance of 25 ohms, an inductance of 0.15H and capacitance of 120 microfarads in series. Determine the line current and total three phase power absorbed.

8) Draw three phase AC wave form. Define phase sequence and balanced load for the three phase AC.

9) State advantages of three phase circuits over single phase circuits.

10) Three identical coils, each of (4.2 + j5.6) ohms are connected in star across 415 V, 3-phase, 50Hz supply. Calculate:

   a. phase voltage
   b. phase current
   c. power factor
   d. power absorbed by each phase.

11) Compare 3 phase Star connection with 3 phase Delta connection.

CHAPTER 5 ELECTRICAL MACHINES (20marks)

3Marks

12) Define efficiency and voltage regulation of single phase transformer.

13) Give one application of the following single phase motors:
   a. Resistance split phase motor
   b. Capacitor start motor.
   c. Universal Motor

14) Compare core type and shell type transformer on any three points

4 Marks

15) Give principle of operation and working of capacitor start single phase induction motor.

16) Give construction and working principle of single phase transformer.

17) Give principle of operation and working of universal motor.

18) Compare auto transformer with two winding transformer.

19) Explain principle of operation of single phase induction motor.

CHAPTER 6 ELECTRICAL SAFETY (8 marks)

3 Marks

20) Draw a neat labeled diagram of pipe earthing.
21) Give classifications of fuses.
22) State any four precautions to be taken against electric shock
23) State need of earthing.

4 Marks

24) What is fuse? Also explain the working of HRC fuse in brief..
25) State the factors on which severity of electric shock depends.