**BVCTE ,ANJANERI,NASHIK**

**Course Name : Computer Engineering**

**Course Code :CM/IF/EJ**

**Semester : Third Subject Title : Electrical Technology**

**1.** State Kirchhoff’s Current law.

**2.** Give expression for the following:

i) Star to Delta conversion of resistances

ii) Delta to Star conversion of resistances

**3.** Define the following for a.c.:

i) Form Factor

ii) Peak Factor

**4.** State importance of Lenz’s law.

**5.** State the difference between EMF and Potential Difference.

**6.** State two advantages of three phase circuits over single phase circuits.

**7.** Give classification of Fuses.

**8.** State two factors affecting severity of electric shock.

**9.**Compare fuse and MCB on the basis of

**i)** Cost ii) operation iii) safety iv) service

**10.** State any one application of following single-phase motors:

i) Resistance split phase motor

ii) Capacitor start- induction run motor

iii) Shaded pole motor

iv) Universal motor

**11.** Draw a labeled diagram showing constructional details of core type single phase

transformer. State its working principle.

**12.** “In parallel combination, the equivalent resistance is less than the least among the

resistors”. Justify the statement with an example.

**13.** Define the following related to a.c.

i) Frequency ii) Cycle iii) Time Period iv) Amplitude

**14.** Draw circuit diagram for measurement of single-phase power using dynamometer type

wattmeter.

**15.** Define the following terms and state their expression:

i) Active Power

ii) Reactive Power

**16.** Draw a.c. wave forms showing the following:

i) Phase difference

ii) In phase

iii) lagging

iv) leading

**17.**Find the Form Factor and Peak Factor of the sinusoidal alternating current.

**18.** Prove that average power consumption in pure inductor is zero when a.c. voltage is

applied.

**19.** State Faraday’s laws of electromagnetic induction.

**20.** Distinguish between statically induced EMF and dynamically induced EMF with

example.

**21.**Draw phasor diagram for R-C series circuit. Write voltage and current equation for it.

**22.** Explain the behaviour of a.c. circuit containing capacitor only when alternating voltage

is applied across it.

**23.** Explain the effect of power factor on power consumption.

**24.**Distinguish between active and reactive power.

**25.** Compare auto transformer with two winding transformer on the basis of:

i) cost ii) construction iii) efficiency iv) application

**26.** Define voltage regulation and efficiency of single phase transformer.

**27.** State relation between phase and line current and phase and line voltage of the

following system:

i) Star connected balanced system

ii) Delta connected balanced system

**28.** Draw three phase a.c. wave forms. Explain phase sequence for the three phase a.c.

**29.** State advantages of balanced load in three phase system.

**30.** For a balanced three phase, three wire system with star connected load for which line

voltage is 230V and per phase resistance and reactance is 6 ohms and 8 ohms

respectively. Calculate line current and power absorbed by each phase.

**31.** An alternating current of frequency 50 Hz has a maximum value of 100 A. Calculate:

i) the instantaneous value after 1/360 second and

ii) the time taken to reach 80 A for the first time

**32.**Explain principle of operation of single phase induction motor.

**33.** Voltage regulations of same capacity distribution transformers are 0.02 and 0.05

respectively. Which transformer will you choose? Justify your answer.

**34.** Give classification of transformers on the basis of :

i) construction ii) supply system ii) power rating iv) applications

**35.** 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 0.15 H and a

capacitance of 120 microfarads in series. Determine the line current and total three

phase power absorbed.

**36.**A coil takes a current of 6 A when connected to a 24 V d.c. supply. To obtain the same

current with a 50 Hz a.c. supply, the voltage required was 30 V. Calculate:

i) the inductance of the coil and

5

ii) the power factor of the coil

**37.** A circuit draws a current of 10 A at a voltage of 200 V and its power factor is 0.8

lagging. Calculate:

i) active power ii) reactive power iii) apparent power.

Also draw power triangle.