Assignment 3

Q1 Write down voltage, current and power relation in balanced delta connected load [03] Dec 12

Q2 Three similar coils, connected in star, take a total power of 1.5 KW at a p.f. of 0.2 lagging from a three phase 440V, 50Hz supply. Calculate the resistance and inductance of each coil. [08] Dec 12

Q3 In a balanced three phase circuit, power is measured by two wattmeters, the ratio of two wattmeter readings is 2:1 Determine the power factor of the system. [04] Dec 12

Q4 Explain measurement of three phase power using two wattmeter method. [06] Dec 12

Q5 Each phase of a delta connected load consists of a 50mH inductor in series with a parallel combination of 5Ω resistor and 5μF capacitor. The load is connected to a three phase 550V, 50Hz a.c. supply. Find ① phase current ② Line current ③ Power drawn ④ Power factor ⑤ Reactive power and KVA rating of the load. [08] May 13

Q6 Draw the circuit for measurement of 3-phase power using two wattmeters and state its advantages over other methods of 3-phase power measurement [04] May 13

Q7 The input power of 3-phase motor was measured by two wattmeter method. The readings of two wattmeters are 5.2 KW and

— 1.7 kW and the line voltage is 415V. Ca.
the total active power, power factor, and
line current. [06] May 13

Q8. Give relation between line current and phase
current, line voltage, and phase voltage in
balanced star and delta connected load [02] Dec 13

Q9 Find the values of circuit elements and
reactive voltampere drawn for a balanced
3 phase load connected in delta and draws
a power of 12kW at 440V. The power factor
is 0.7 leading. [08] Dec 13

Q10 In three phase power measurement by
two wattmeter method, both the wattmeters
read the same value. What is the power
factor of the load? Justify your answer
 [04] Dec 13

Q11 Two wattmeters are connected to measure
power in three phase circuit. The reading
of one of the wattmeter is 7kW when
load power factor is unity. If the power
factor of the load is changed to 0.707
lagging without changing total input power
Calculate the readings of the two
wattmeters. [06] Dec 13

Q12 Three identical coils each {4.2 − j5.6} ohm
are connected in star across 415V, 3 phase
50Hz supply. Determine 1) Vph 2) Iph 3) P.f.
 [02] May 14

Q13 Three similar coils, connected in star, take
a total power of 18kW at a power factor
of 0.866 lagging from a three phase 400 Volts,
50Hz supply. Calculate the resistance and
inductance of each coil. Also draw the
phasor diagram showing the currents & voltages. [06]
 May 14

A 3-phase 10KVA load has power factor of 0.342. The power is measured by two Wattmeters method. Find the reading of each wattmeter when
i) Power factor is leading   [04] May 14
② Power factor is lagging

Q15 Explain Measurement of three phase power using two wattmeter method [06]
May 14

Q16 Draw the phasor diagram for 3-phase star connected load with a leading power factor. Indicate line and phase voltages and currents.   [02] Dec 14

Q17 A balanced 3 phase load consists of 3 coils, each of resistance 4Ω and inductance 0.02H. It is connected to a 440V, 50Hz, 3-Φ supply. Find the total power consumed when the load is connected in star and the total reactive power when the load is connected in delta   [08] Dec 14

Q18 Two wattmeters are connected to measure power in a 3-Φ balanced star connected load using the two wattmeter method. The readings of the two wattmeters are 8kw and 4kw respectively. Calculate the total power consumed by the 3Φ load and the power factor   [04] Dec 14

Q19 With the help of neat circuit diagram and phasor diagram explain the 2-wattmeter method to measure power in a 3-ϕ balanced delta connected load.   [06] Dec 14.

Q20 Draw the phasor diagram for 3phase delta connected load with a lagging power factor. Indicate the line & phase voltage and currents.   [02] May 15.

Q21 Three similar coils each having resistance of 10Ω and inductance of 0.04H are connected in star across a 3phase, 50Hz, 200V supply. Calculate the line current total power absorbed, reactive voltamperes, and total volt amperes. [08] May 15.

Q22 Two wattmeters are used to measure power in 3-ϕ balanced delta connected load using two wattmeter method. The readings of the two wattmeters are 500w and 2500w respectively. Calculate the total power consumed by the 3-ϕ load and the power factor. [04] May 15

Q23 With the help of a neat circuit diagram and phasor diagram explain the 2-wattmeter method to measure power in a 3ϕ balanced star connected load. [06] May 15.