

BACHELOR OF TECHNOLOGY (C.B.C.S.) (2021-COURSE)
B. Tech. Sem - I Robotics & Automation Engineering : WINTER- 2022
SUBJECT : ELECTRICAL ENGINEERING SYSTEMS

Day : Friday

Time : 10:00 AM-01:00 PM

Date : 13-01-2023

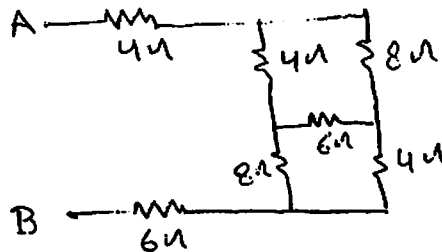
W-24119-2022

Max. Marks : 60

N.B :

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.

Q.1 a)



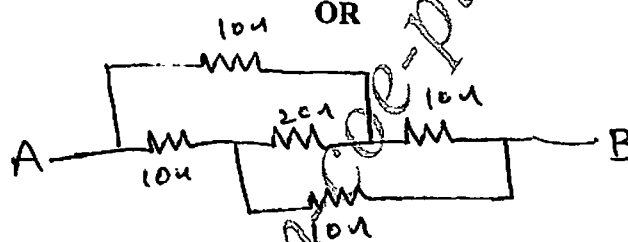
(05)

Find equivalent resistance between AB.

- b) Explain the concept of super node with example.

(05)

Q.1 a)



(05)

Find the equivalent resistance between AB.

- b) Explain the concept of super-mesh with example.

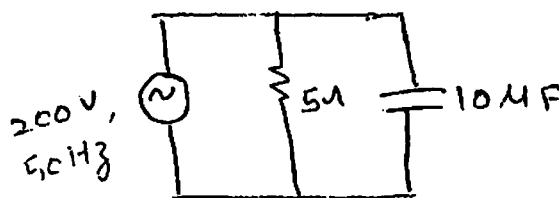
(05)

Q.2

- a) Explain how the current lags by voltage when the inductor is connected across AC supply source. (05)
- b) Explain series resonance and find resonance frequency and quality factor. (05)

OR

Q.2 a)



(05)

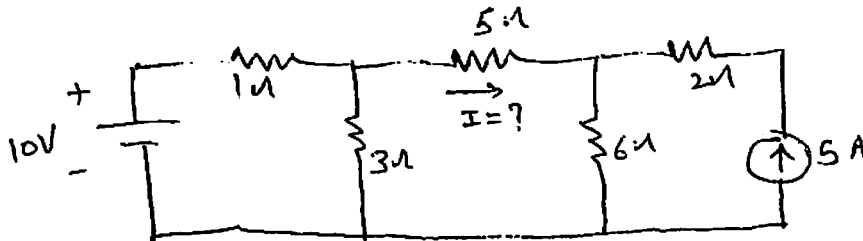
Find current in each element and power factor of given circuit.

- b) Explain three phase power measurement using two wattmeter method.

(05)

P.T.O.

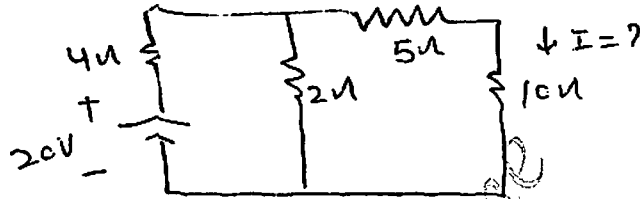
- Q.3 a) Explain construction working and application of Megger. (05)
 b) (05)



Find the value of current across 5ohm resistance using superposition theorem.

OR

- Q.3 a) Explain working of fuse, Relay, Contractors, Timers briefly. (05)
 b) (05)



Find the value of current across 10 ohm resistance using thevenin's theorem.

- Q.4 a) Explain construction, working principle and stating of 3- ϕ Induction motor. (05)
 b) Draw torque-slip characteristics of 3- ϕ IM. Also explain the effect of resistance on torque slip characteristics. (05)

OR

- a) Explain construction, working and applications of servo motor. (05)
 b) Explain capacitor start capacitor run induction motor with torque speed characteristics and applications. (05)

- Q.5 a) Explain 4 Point starter method of DC machines. (05)
 b) A 4 pole generator having wave-wound armature winding has 61 slots, each slot contain 30 conductors. What will be the generated voltage in machine when driven at 1500 rpm. Assuming the flux per pole to be .008 weber. (05)

OR

- a) Explain armature reaction, interpoles and compensating windings. (05)
 b) A 100 kw, 240 v shunt dc generator has a field winding resistance of 55 ohm and armature resistance of 0.067, find full load generated voltage. (05)

- Q.6 a) Explain the working principle of earthing and types of earthing. (05)
 b) Explain safety measures in electric systems. (05)

OR

- a) Explain 3- ϕ 3-wire and 3- ϕ 4-wire systems. (05)
 b) Find ABCD parameters of a medium transmission line. (05)

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