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Question Paper Code: 21009

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2014.

Second Semester

Instrumentation and Control Engineering

01UIC207 - ELECTRIC CIRCUITS AND ELECTRONIC DEVICES

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

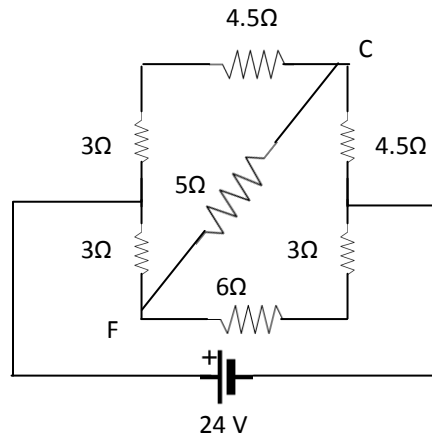
Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. What is the use of Thevenin theorem?
2. State Maximum Power Transfer theorem.
3. Write a note on under damped, over damped and critically damped systems.
4. What is anti-resonance?
5. What do you mean by voltage barrier?
6. Define the term transition capacitance.
7. Why is MOSFET called as IGFET?
8. Mention the three regions that are present in the drain source characteristics of JFET.
9. Why silicon is preferred over Germanium in the manufacture of semiconductor devices?
10. Name the materials used to construct LED.

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Calculate the current through the branch FC using Thevenin's theorem. (12)

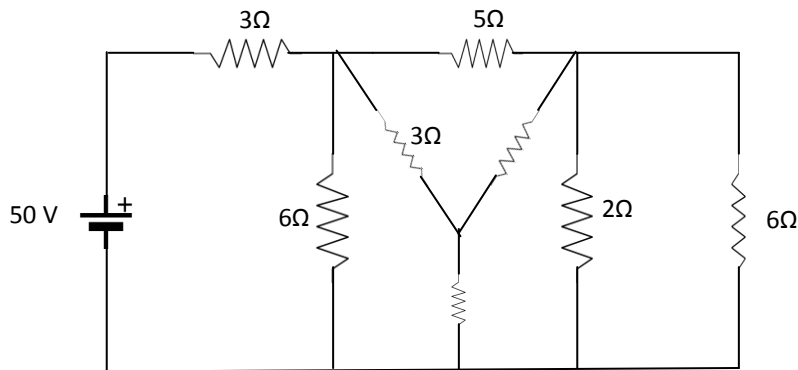


(ii) Give the significance of super position theorem. (4)

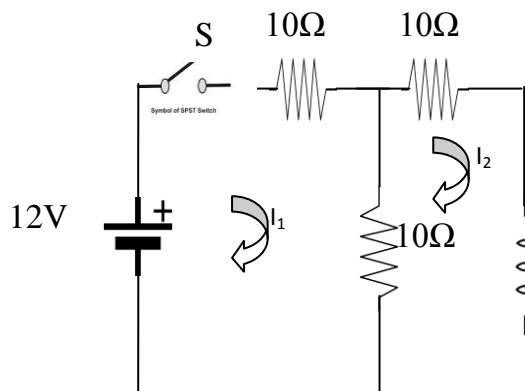
Or

(b) (i) Define Norton's theorem. (4)

(ii) Determine the current drawn by the circuit using Y- Δ transformation. (12)



12. (a) In a circuit shown in figure, the switch remains closed for a long time. At $t = 0$, the switch is opened. Find $i_2(t)$ and sketch. (16)



Or

(b) Explain the step response of RLC circuit with an example. (16)

13. (a) Explain the theory of PN junction diode and explain how it acts as a full wave rectifier? (16)

Or

(b) Explain the function of a Zener diode and narrate its characteristics. (16)

14. (a) With the help of suitable diagrams explain the working of different types of MOSFET. (16)

Or

(b) Explain the characteristics of JFET with neat diagram. (16)

15. (a) Draw the characteristic of UJT and identify the negative resistance region? Explain its operation. (16)

Or

(b) Describe the operation of LED and LCD. (16)
