C   **Reg. No. :** ⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚

Duration: Three hours   Maximum: 100 Marks

Answer All Questions

PART A - (5x 1 = 5 Marks)

1. Ohms law holds true only for _____ circuits   CO1- R

    (a) Linear   (b) Non-linear   (c) Unilateral   (d) None of the above

2. Three equal resistances of 3 Ω are connected in star. What is the resistance in   CO2- R
   one of the arms in an equivalent delta circuit

    (a) 10 Ω   (b) 3 Ω   (c) 9 Ω   (d) 27 Ω

3. What is the total reactance of a series RLC circuit at resonance?   CO2- R

    (a) Equal to X_L (b) Equal to X_C (c) Equal to R   (d) Zero

4. Which amplifier is used in an electronic multimeter ?   CO4- R

    (a) Wideband amplifier   (b)Differential amplifier

    (c) Buffer amplifier   (d) Power amplifier

5. Fuse protection is used for current ratings up to   CO5- R

    (a) 10 A   (b) 20 A   (c) 50 A   (d) 100 A

PART – B (5 x 3= 15 Marks)

6. Define ideal voltage source   CO1- U

7. Define Norton Theorem   CO2- U

8. What do you understand by resonance?   CO3- U

9. List the difference between CT and PT   CO4- U

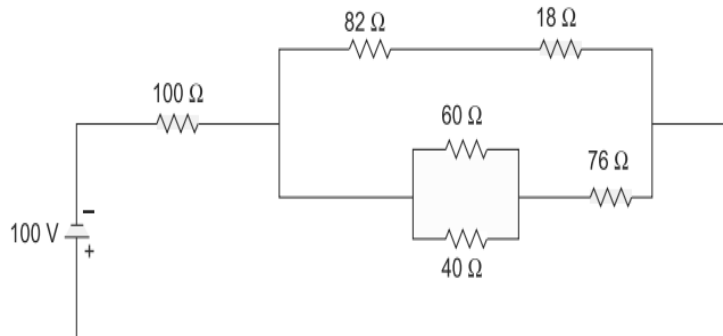10. What is the purpose of earthing ?   CO5- U

PART – C (5 x 16= 80Marks)

11. (a) Determine the current delivered by the source in the circuit shown in Fig   CO1-App   (16)
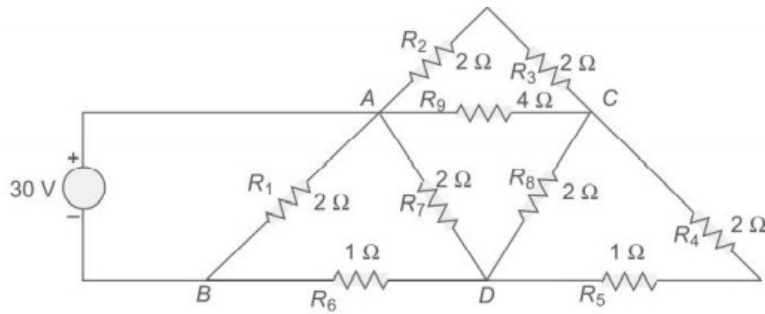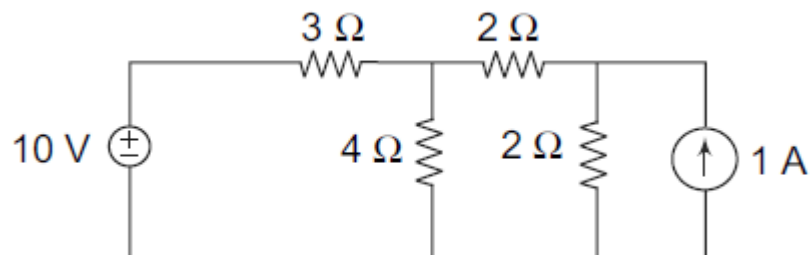

Or

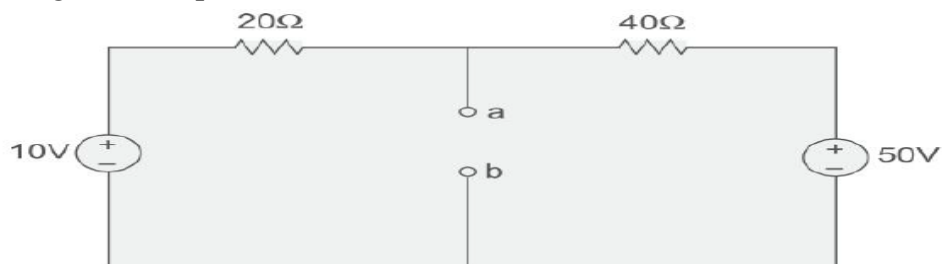(b) For the circuit shown in Fig., find the total resistance.   CO1-App   (16)

12. (a) Calculate the current in the 4 Ω resistor of using the superposition theorem.   CO2-App   (16)


Or

(b) Find the Thevenin's and Norton's equivalents for the circuit shown in Fig. with respect to terminals ab.   CO2-App   (16)

2

U2B05

13. (a) A series RLC circuit has a quality factor of 5 at 50 rad/s. The   CO3-App   (16)
current flowing through the circuit at resonance is 10 A and the
supply voltage is 100 V. The total impedance of the circuit is 20 V.
Find the circuit constants

Or

(b) In the circuit shown in Fig. a maximum current of 0.1 A flows   CO3-App   (16)
through the circuit when the capacitor is at 5 μF with a fixed
frequency and a voltage of 5 V. Determine the frequency at which
the circuit resonates, the bandwidth, the quality factor Q and the
value of resistance at resonant frequency
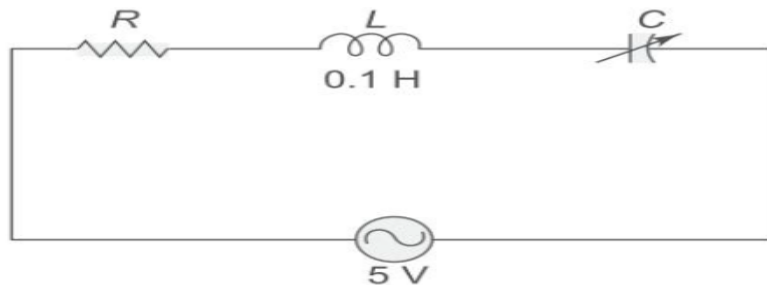
14. (a) Explain the construction and working principle of PMMC type   CO4-U   (16)
instrument with necessary diagram

Or

(b) Elucidate the construction and working principle of an energy   CO4-U   (16)
meter with necessary circuit arrangement

15. (a) Explain the various methods of electrical wiring system   CO5-U   (16)

Or

(b) What are the basic concepts of household wiring and explain?   CO5-U   (16)

U2B05