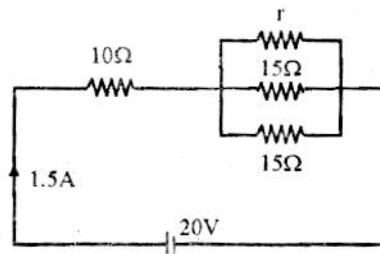




- Notes :
1. All question carry equal marks.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Use of pen Blue/Black ink/refill only for writing the answer book.

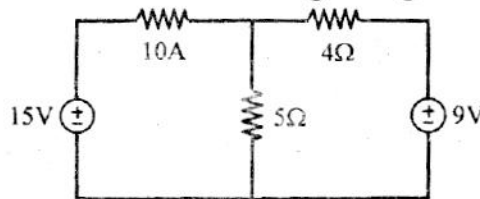
1. a) Calculate the value of resistance r , when total current supplied by the 20V, battery is 1.5A for the network shown in fig. 7



- b) Explain Kirchhoff's current and voltage law. 7

OR

2. a) Derive the expression for star to delta transformation. 7
b) Apply Thevenin's theorem and find current flowing through 4Ω resistance. 7



3. a) Compare electrical and magnetic circuit by their similarities and dissimilarities. 6
b) An air core solenoid having a diameter of 4cm and length 60cm wound with 400 turns if a current 5A. Calculate 7
i) inductance. ii) Energy stored in magnetic circuit.

OR

4. a) Derive an expression for mutual inductance. 6
b) An iron ring of 25cm in diameter and 10cm² cross section area is wound with 250 turns of wire for flux density 1 wb/m² and permeability 800, find 7
i) Exciting current ii) Self inductance
iii) Corresponding when there is 1mm airgap cut in the ring.

5. a) Explain construction and working principle of PMMC instrument. 7
b) What do you mean by earthing. Explain importance of earthing. 6

OR

6. a) With the help of suitable diagram explain the energy meter. 7
b) Explain : 6
i) Plate earthing. ii) Pipe earthing.
