CLASS-XII (PHYSICS)
SESSION : 2016-17
HOLIDAYS ASSIGNMENT

Q1 A wire of resistivity p is stretched to double its length. What will its New resistivity?

Q2 Two wires one of manganin and other of copper have equal length equal resistnce. Which one of these wires will be thicker?

Q3 Two120v light bulbs, one of 25w and the other of 200w were connected In series across a 240v line. One bulb burnt out almost instantaneously .Which one was burnt and why?

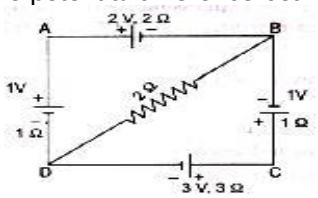
Q4 Two wires x ,y have the same resistivity but their cross-sectional areas Are in the ratio 2:3 and length in the ratio 1:2. they are first connected In series and then in parallel to a dc source. Find out the ratio of the Drift speeds of the electrons in the two wires for the two cases.

Q5 A cell of emf (E) and internal resistance(r) is connected across a variable External resistance (R) .Plot graphs to show variation of:

(i) E with R.

(ii) Terminal p.d. of the cell(v) with R.

Q6 For the cicuit shown here, calculate the potential difference between point B and D.



ANS 2/13V

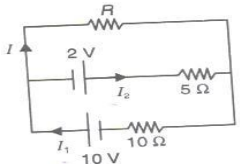
Q7 a wire of 20Ω resistance is gradually stretched to double its original Length.it is then cut into two equal parts. These parts are then Connected in parallel across a 4v battery, find the current drawn From the battery. ANS:0.2A

Q8 An electron moving through a wire has an average drift speed that is very small. Does this mean that its instantaneous velocity is also Very small?

Q9 Since electric current is a flow of charge. Why are two wires rather A single one used to carry current?

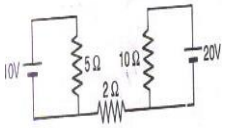
Q10 Two resistors, 400Ω and 800Ω are connected in series with a 6v battery. It is desired to measure the current in the circuit,(a) An ammeter of 10Ω resistance is used for this purpose .what will be then reading in the ammeter? (b)If a voltmeter of 10000Ω is used to measure the p.d. across 400Ω, what Will be the reading in the voltmeter? ANS: (a) 4.96×10^{-3} (b)1.96v

Q11 Two cells of voltage 10v and 2v and internal resistances 10Ω and 5Ω resp. Are connected in parallel with the positive end of 10v battery connected to Negative pole 2v battery. Find the effective voltage and effective Resistance of the combination.



ANS: $E_{eff} = 2$, $R_{eff} = 10/3$

Q12 what will be the value current flowing through 2Ω resistance for the Circuit shown In figure



ANS: ZERO

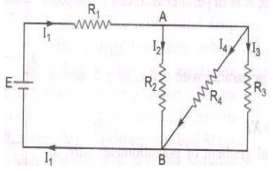
Q13 Derive the relation between current and drift velocity.

Q14 Why are alloys used for making standard resistances coils?

Q15 A cell of emf E and internal resistance r is connected across an External resistance R. plot a graph showing the variation of p.d. Across R, verses R.

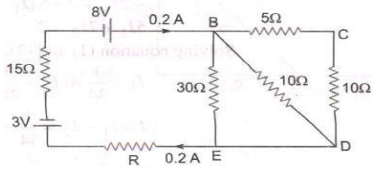
Q16 In the circuit diagram R_1=4Ω , $R_2 = R_3$ 15Ω , R_4 =30Ω and E10v. calculate

Equivalent resistance of the circuit and the current in each resistor.



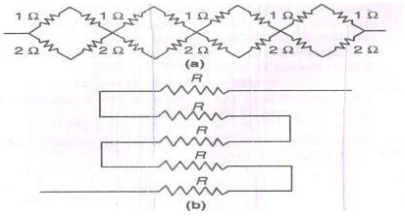
ANS: R_{eq} = 10Ω, I_1=1A , I_2= I_3 = 0.4A, I_4= 0.2A

Q17 Calculate the value of the resistance R in the circuit shown in the figure so that the Current in the circuit is 0.2A. what would be the potential difference between points B and E.



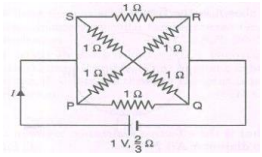
ANS: 1V

Q18 Determine the equivalent resistance of the network as shown in fig.



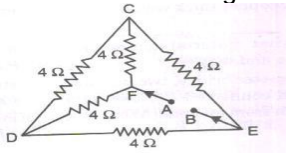
ANS: (a) 16/3 ,(b) 5R

Q19 Find the current drawn from a cell of e.m.f 1v and internal resistance 2/3Ω connected to The network as shown in the circuit below.



ANS = 1A

Q20 A potential difference of 4v is applied between the points A and B shown in the fig. Calculate: (i) equivalent resistane in the network across points A and B
(ii) the magnitudes of currents flowing in arms AFCEB and AFDEB



ANS: R=4Ω ,I=0.5A

Q21 Two metallic wires of the same material have the same length but cross sectional area is in the ratio 1:2 they are connected (i) in series (ii)in parallel. Compare the drift velocities of electrons in the wires in both the cases (i) and (ii).

Q22 what happens if the plates of a charged capacitor are suddenly connected by a conducting wire?

Q23 By what factors does the capacitance of a metal sphere increases if its volume is tripled?

Q24 when a capacitor is charged and discharged repeatedly, its dielectric gets heated . why?

Q25 keeping the voltage of the charging source constant, what would be the percentage change in the Energy stored in a parallel plate capacitor if the separation between its plates were to be decreased By 10% ?