

## Questions on Resistors

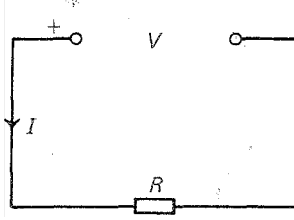
### Q1

- (a) What is the resistance of a wire when a voltage of 6V across it causes a current of 1.5A?  
 (b) Calculate the p.d. across a wire of resistance 10R carrying a current of 2 A.

### Q2

In the circuit below calculate:

- (a)  $V$  if  $I=5$  mA and  $R=2$  k,  
 (b)  $R$  if  $V= 12$  V and  $I=3$  mA,  
 (c)  $I$  if  $V= 10$  V and  $R=5$  k.



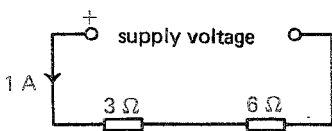
### Q3

Draw a diagram to show how you would connect two 10 R resistors to give a total resistance of (a) 20 R, (b) 5 R.

### Q4

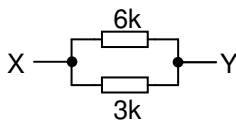
in the circuit below what is

- (a) the current in the 3 R resistor,  
 (b) the current in the 6 R resistor,  
 (c) the p.d. across the 3 R resistor,  
 (d) the p.d. across the 6 R resistor, and  
 (e) the supply voltage?

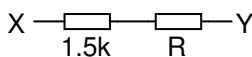


### Q5

(a) Calculate the total resistance of the two resistors connected in parallel below.

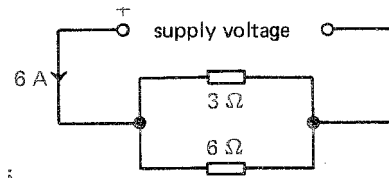


(b) The parallel network above is to be replaced by two resistors in series, one of which has a value of 1.5k. What will be the value of the other resistor R if the total resistance is to be the same as that of the parallel network?



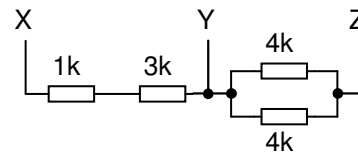
### Q6

Repeat question 4 for the circuit below



### Q7

For the network below calculate the total resistance between (a) X and Y, (b) Y and Z, (c) X and Z.



### Q8

What are the values and tolerances of  $R_1$ ,  $R_2$  and  $R_3$ , colour coded in the table below?

Band	1	2	3	4
R1	brown	black	red	silver
R2	yellow	violet	orange	gold
R3	green	blue	yellow	none

### Q9

What are the colour codes for the following:

- (a)  $150R \pm 10\%$ , (b)  $10R \pm 5\%$ , (c)  $3.9k \pm 10\%$ , (d)  $10k \pm 10\%$ , (e)  $330k \pm 20\%$ , (f)  $1M \pm 10\%$ ?

The Resistor Colour Code	
Black	0
Brown	1
Red	2
Orange	3
Yellow	4
Green	5
Blue	6
Violet	7
Grey	8
White	9

### Q10

What E12 preferred values would you use if you calculated that a circuit needed resistors having values of: (a) 1.3k, (b) 5.0k, (c) 72k, (d) 350k?

### Q11

(a) What are the values of the following colour coded resistors R1, R2 and R3?

R1 - brown black orange

R2 - yellow violet yellow

R3 - orange orange black

(b) What are the colour codes for the following resistors? (i) 22 k (ii) 6.8 k (iii) 10 M

(c) If a 100 k resistor has a tolerance of 10%, calculate its possible maximum and minimum values.