



# PHYSICS

## BOOKS - S CHAND PHYSICS (HINGLISH)

### TEST PAPER 3

#### Section A

1. The electricity resistivity of a few materials is given in ohm-metre. Which of these materials

can be used for making element of a heating device ?

*A*  $6.84 \times 10^{-8}$

*B*  $1.60 \times 10^{-8}$

*C*  $1.00 \times 10^{-4}$

*D*  $2.50 \times 10^{12}$

*E*  $4.40 \times 10^{-5}$

*F*  $2.30 \times 10^{17}$

Give reason for your answer.



**Watch Video Solution**

2. Draw the circuit diagram of an electric circuit containing a battery of 6 V, a key , an ammeter , a resistor of  $4\Omega$  in series with a

combination of two resistors of  $8\Omega$  each in parallel, and a voltmeter across the parallel combination.

(a) Calculate the resistance of the circuit .

(b) Find the current flowing in the circuit.

(c) What will be the voltage across the parallel combination of resistors?



**Watch Video Solution**

**3. What is geothermal energy? Explain how geothermal energy is used to generate**

electricity . State two advantages of geothermal energy.



**Watch Video Solution**

4. Name the three R's to save the environment with examples.



**Watch Video Solution**

5. (a) Two lenses have power of (i) + 2D (ii) -4 D.  
What is the nature and focal length of each

lens ?

(b) An object is kept at a distance of 100 cm from each of above lenses. Calculate the (i) image distance of 100 cm from each of above lenses. Calculate the (i) image distance (ii) magnification in each of the two cases.



**Watch Video Solution**

**6.** In a household electric circuit different appliances are connected in parallel on one another . Give two reasons.

An electrician puts a fuse of rating 5 A in that part of domestic electricity circuit in which an electric heater of rating 1.5 K W, 220 V is operating. What is likely to happen in this case and why? What change , if any, needs to be made?



**Watch Video Solution**

7. Out of plane mirror, convex mirror and concave mirror :

(a) Which mirror is used as a reflector in the

headlights of a car ?

(b) which mirror is used as a rear-view mirror in a car ?



**Watch Video Solution**

8. The focal length of a concave lens is 20 cm, if an object is placed at a distance of 50 cm in front of this concave lens, where is the image formed ? What is the nature of the image ?



**Watch Video Solution**

9. (a) State the advantages of constructing dams across the rivers.

(b) Describe some of the problems associated with the construction of dams.



**Watch Video Solution**

10. (a) For which position of an object, a concave mirror forms a real image equal in size to the object ?

(b) State one use of a concave mirror.

(c) An object of height 1 cm is placed at a



distance of 15 cm from a concave mirror of radius of curvature 20 cm. Find the position, nature and size of the image formed.



**Watch Video Solution**

**11. (a)** An object is placed between  $f$  and  $2f$  in front of a convex lens. Draw a labelled ray-diagram to show the formation of image.

**(b)** State whether the image formed is real or virtual.

© State whether the image formed is diminished or enlarged.



**Watch Video Solution**

**12.** (a) what is meant by series and parallel combination of resistances ?

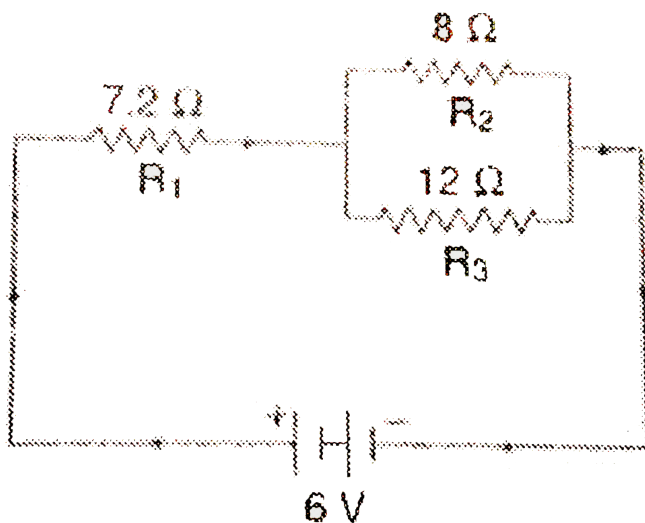
(b) in which case, series combination or parallel combination, the combined resistance is less than any of the individual resistances ?

(c ) How should two resistance of  $2\Omega$  each be connected so as to produce an equivalent

resistance of  $1\Omega$  ?

In the circuit diagram given here , find:

- (i) total resistance of the circuit
- (ii) total current flowing in the circuit, and
- (iii) the potential difference across  $R_1$



**Watch Video Solution**

**13.** (a) what is meant by the heating effect of current ? State three factors on which the heat produced in a wire by an electric current depends.

(b) Explain why, through the heating element of an electric heater glows, but its connecting cord does not glow.

(c) An electric geyser of resistance  $20\Omega$  takes a current of 5 A. calculate the heat produced in 2 minutes.

(d) Name the commercial unit of electric energy. How many joules are equal to this unit ?



Watch Video Solution

## Section B

1. A student performs an experiment to study the magnetic effect of current around a current-carrying straight conductor. He reports that:

(i) the direction of deflection of the north pole of a compass needle kept at a given point near the conductor remains unaffected even when the terminals of the battery sending the

current in the wire are interchanged.

(ii) For a given battery current, the degree of deflection of a N-pole decreases when the compass is kept at a point farther away from the conductor.

Which of the above observations is correct and why?



**Watch Video Solution**

2. You are given resistors of 2 ohms, 4 ohms, and 6 ohms. With the help of these resistors,

how can you get a resultant resistance of (i) 12 ohms, and (ii) 3 ohms?

Draw diagrams to illustrate your answer.



**Watch Video Solution**