



# PHYSICS

## BOOKS - S CHAND PHYSICS (HINGLISH)

### TEST PAPER 2

#### Section A

1. The following table given the values of refractive indices of a few media.

S.No.	1	2	3	4	5
Medium	Water	Crown Glass	Rock salt	Ruby	Diamond
Refractive Index	1.33	1.52	1.54	1.71	2.42

Use this table to give an example of (i) a medium pair so that light speeds up when it goes from one of these media to another (ii) a medium pair so that light slows down when it goes from one of these media to another.



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2. A household uses the following electric appliances :

(a) Refrigerator of rating 400 W for ten hours

each day.

(b) Two electric fans of rating 80 W each for twelve hours each day.

(c ) Six electric tubes of rating 18 W each for 6 hours each day.

Calculate the electricity bill of the household for the month of the june if the cost per unit of electric energy is ₹3.00.



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3. Why does a current carrying conductor kept in a magnetic field experience force ? On what factors does the direction of this force depend? Name and state the rule used for the determination of direction of this force.



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4. Two metallic wires A and B are connected in parallel. Wire A has length  $l$  and radius  $r$ , wire B has a length  $2l$  and radius  $2r$ . Compute the

ratio of the total resistance of parallel combination and the resistance of wire A.



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5. Why are environmentalists insisting upon 'sustainable natural resource management'? Give any three reasons .



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6. "What was Chipko Andolan"? How did this Andolan ultimately benefit the local people and the environment ?



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7. A student find the writing on the blackboard as blurred and unclear when sitting on the last desk in the classroom. He, however, sees it clearly when sitting on the front desk at an approximate distance of 2m from the

blackboard. Draw ray diagrams to illustrate the formation of image of the blackboard writing by his eye-lens when he is seated at the (i) last desk (ii) front desk. Name of the kind of lens that would help him to see clearly even when he is seated at the last desk. Draw a ray diagram to illustrate how this lens helps from to see clearly.



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8. Explain the meaning of the word 'electromagnetic' and 'induction' in the term electromagnetic induction. On what factors does the value of the induced current produced in a circuit depend? Name and state the rule used for determination of direction of induced current. State one practical application of this phenomenon in everyday life.



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9. (a) Name one device which works on the magnetic effect of current.

(b) Name one device which works on the phenomenon of electromagnetic induction.

(c) Which device converts electric energy into mechanical energy?

(d) Describe the principle of working of an electric motor.

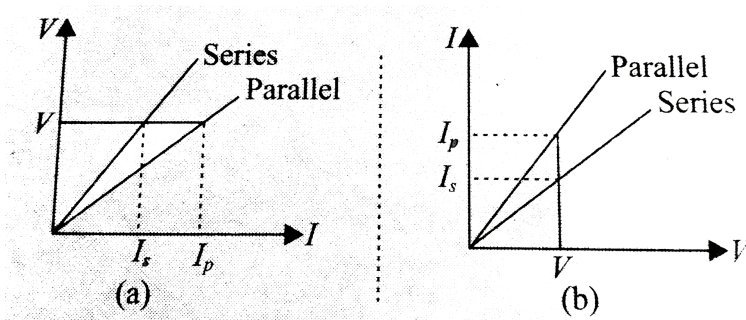
(e) Explain the principle of working of an electric generator.



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## Section B

1. Two students perform experiments on series and parallel combinations of two given resistors  $R_1$  and  $R_2$  and plot the following  $V - I$  graphs [Fig. 5.24.]. Which of the graphs is/are correctly labeled in terms of the words 'series' and 'parallel'? Justify your answer.



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2. Two students made box-type solar cookers separately. They both painted the insulated box with black colour from inside, the cooking pots were painted black from outside, and a plane mirror reflector was also attached. One of the students covered the solar cooker box with a transparent glass sheet but the other student covered the solar cooker box with a transparent plastic sheet. Which of the two solar cookers will be more efficient and why ?



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**3.** A student is performing an experiment with two triangular glass prisms. He places the first glass prism on its base. The second glass prism is placed upside down behind the first glass prism. When a beam of white light is allowed to fall on the first glass prism, then a patch of ordinary white light is obtained on a screen placed behind the second glass prism.

(a) Draw a ray diagram to show the above-arrangement of two glass prisms and the light passing through them.

(b) What is the function-of (i) first prism, and  
(ii) second prism, in this arrangement?



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