



PHYSICS

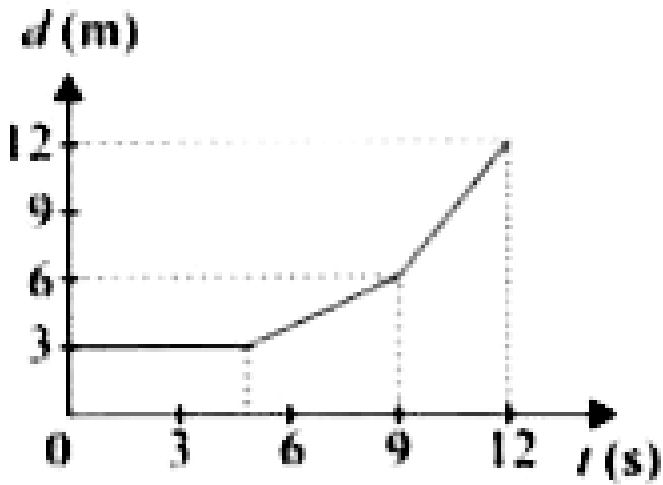
BOOKS - HT Olympiad Previous Year Paper

NSO QUESTION PAPER 2017-18 SET A

Science

1. The distance-time graph of a motorcycle is shown in the figure. When was the motorcycle

travelling at a speed of 2 m s^{-1} ?



- A. 2.5 s
- B. 5.0 s
- C. 8.0 s
- D. 10.5 s

Answer: D



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2. The melting and boiling points of four different substances are shown in the table.

The room temperature is 30°C .

Substance	Melting point ($^{\circ}\text{C}$)	Boiling point ($^{\circ}\text{C}$)
<i>P</i>	-114	80
<i>Q</i>	-210	-196
<i>R</i>	-40	360
<i>S</i>	330	1750

Which of the following statements are incorrect about the data given in the table?

(i) Substance P is in solid state at room temperature.

(ii) Substance Q is in liquid state at room temperature.

(iii) Substance R is gas at -150°C and solid at -220°C .

(iv) Substance S is in solid state at room temperature.

A. (i) and (ii) only

B. (i), (ii) and (iii) only

C. (iii) and (iv) only

D. (i), (ii), (iii) and (iv)

Answer: B



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3. Match column I with column II and select the correct option.

	Column I		Column II
P.	Plane mirror	(i)	Used as a magnifying glass
Q.	Concave mirror	(ii)	Can form image of objects spread over a large area
R.	Convex mirror	(iii)	Used by dentists to see enlarged image of teeth
S.	Concave lens	(iv)	The image formed is erect and of the same size as the object
T.	Convex lens	(v)	Is known as diverging lens

A. P-(iv), Q-(ii), R-(i), S-(iii), T-(v)

B. P-(ii), Q-(iii), R-(i), S-(v), T-(iv)

C. P-(iii), Q-(ii), R-(iv), S-(v), T-(i)

D. P-(iv), Q-(iii), R-(ii), S-(v), T-(i)

Answer: D



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4. Read the given statements and select the correct option.

Statement 1: The cyclone consists of a high pressure region with low pressure all around.

Statement 2 : The winds tend to blow towards

the low pressure region and circulate violently around the centre of cyclone with great speed.

A. Both the statements 1 and 2 are true and statement 2 is the correct explanation of statement 1.

B. Both the statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1.

C. Statement 1 is true but statement 2 is false.

D. Statement 1 is false but statement 2 is true.

Answer: D

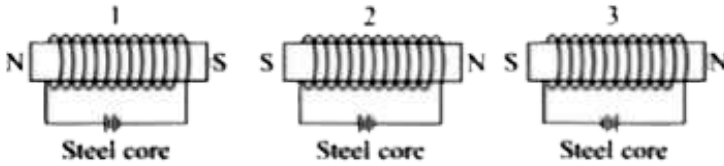


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5. In which diagram(s) is/are the correct poles of the electromagnet indicated?

(N indicates North pole and S indicates south

pole.)



A. 2 only

B. 1 and 2 only

C. 2 and 3 only

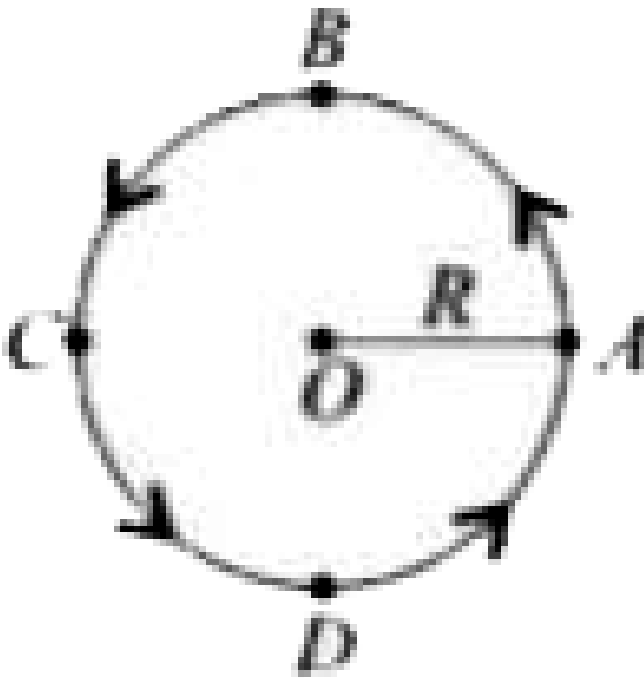
D. 1, 2 and 3

Answer: A



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6. A particle moves on a circular path of radius R as shown in figure. The distance travelled and displacement of of the particle from point A to point C respectively are



A. $\frac{\pi R}{2}, 2R$

B. $\pi R, 2R$

C. $\frac{\pi R}{2}, \frac{\pi R}{2}$

D. $\pi R, \pi R$

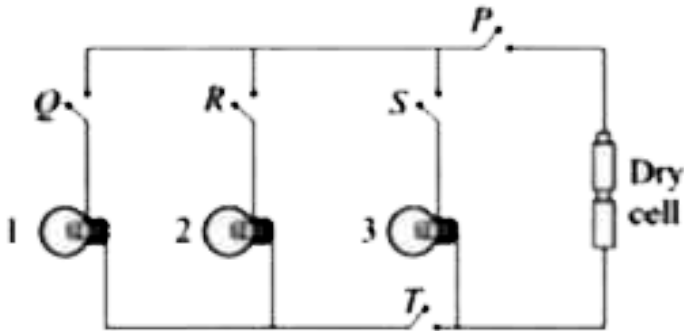
Answer: B



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7. A circuit diagram is shown here. Which of the switches must be closed so that only bulb

2 lights up?



A. P, R and T only

B. R and T only

C. R, S and T only

D. P, Q, R, S and T

Answer: A



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8. When a light ray is reflected repeatedly by a set of parallel plane mirrors, the intensity of the light ray decreases after some reflections.

This is because of

A. Poor reflection from mirrors

B. Absorption of some amount of light by mirrors

C. Scattering of light by mirrors

D. None of these

Answer: B



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9. On holding a stainless steel spoon near our face, we see

A. Our inverted image on outer side of the spoon

B. Our erect image on inner side of the spoon

C. Our inverted image on inner side of the spoon

D. Both B and C are possible.

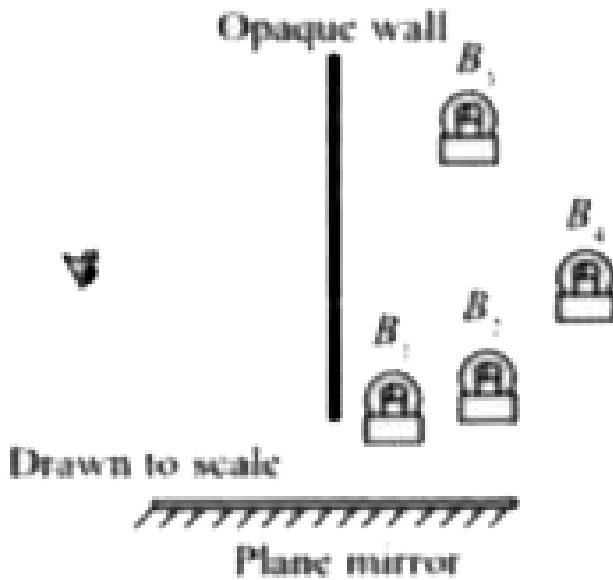
Answer: D



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10. Four light bulbs are concealed from an observer by an opaque wall as shown. Without shifting the positions of the observer and the bulbs, how many bulbs can the observer see

from the mirror?



- A. 1
- B. 2
- C. 3
- D. 4

Answer: C



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