SET - A

E 906 - Ph

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SUMMATIVE ASSESSMENT - 1 2026-27
PHYSICS

Standard: IX

Time : 1½ hour
Total Score : 40

Instructions

- The first 15 minutes is the cool-off time.
  Use this time to read and understand the questions and plan your answers.
- This question paper consists of 18 questions divided into Sections A, B, C, and D.
- There is a choice for questions 10, 11, 16, 17, and 18.

SECTION A

Choose the correct answer for questions 1 to 4. Each question carries 1 score. **(4 × 1 - 4)**

1. Statement: Stars appear to twinkle. (1)

   Reason: Light rays coming from the stars undergo irregular refraction in the atmosphere.

   a. Both Statement and Reason are correct, and the Reason explains the Statement.

   b. Both Statement and Reason are correct, but the Reason does not explain the Statement.

   c. The Statement is correct, but the Reason is wrong.

   d. The Statement is wrong, but the Reason is correct.

2. Match the following and select the correct option from the choices given below. (1)

A	B	C
i) Velocity	p) Velocity x Time	x) m/s^2
ii) Displacement	q) $\frac{\text{Change in Velocity}}{\text{Time}}$	y) m/s
iii) Acceleration	r) $\frac{\text{Displacement}}{\text{Time}}$	z) m

   a) i - r - z, ii - p - y, iii - q - x b) i - r - y, ii - p - z, iii - q - x

   c) i - r - y, ii - p - z, iii - q - z d) i - r - z, ii - p – y, iii - q – y

3. To reach school, a student travels 400 meters north from home, then turns towards west and travels 300 meters. If the straight-line distance between the school and the home is 500 meters, select the correct distance and displacement travelled by the student. (1)

   a) Distance = 500 m, Displacement = 300 m

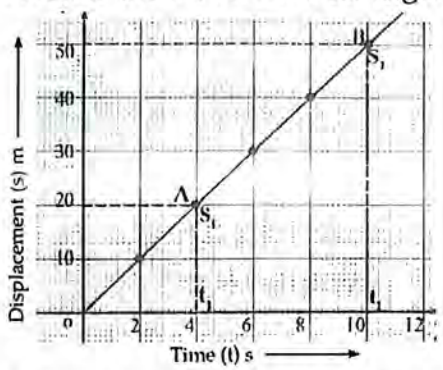
   b) Distance = 500 m, Displacement = 700 m

   c) Distance = 700 m, Displacement = 500 m

   d) Distance = 700 m, Displacement = 400 m

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4. The position-time graph related to the motion of a car is given below.



Observe the graph and find the correct scale from the choices given below: (1)

	X-Axis	Y-Axis
a	1 cm = 10 s	1 cm = 2 m
b	1 cm = 2 s	1 cm = 10 m
c	1 cm = 2 s	1 cm = 5 m
d	1 cm = 4 s	1 cm = 10 m

SECTION B

Answer questions 5 to 11. There is a choice for questions 10 and 11. Each question carries 2 scores. **(7 x 2 = 14)**

5. Classify the following situations into uniform velocity and non-uniform velocity. (2)
   a) A person walking around a circular stadium at a constant speed.
   b) A car moving at a constant speed in the same direction along a tarred road.
   c) A train coming to a halt at a station.
   d) Light travelling through vacuum.

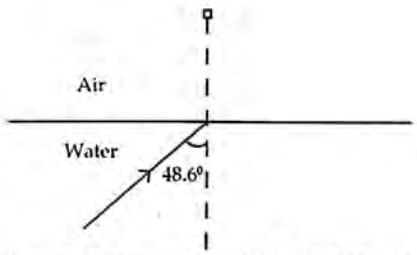
6. Write down any two precautions to be adopted by pedestrians to safeguard from road accidents. (2)

7. Answer the questions based on the given example:

   Zebra crossing : for pedestrians to cross the road safely.

   a) White broken lines on the road : (1)
   b) Continuous yellow lines on the road : (1)

8. Observe the given figure.



   a) What will be the angle of refraction here? (1)
   b) Redraw the diagram to show the path of the ray when the angle of incidence is 60^0. (1)

9. a) After returning home from a tour, a child said that "even though I travelled a long distance, my displacement was zero". Write your response to this statement. (1)
   b) Explain a situation where distance travelled and displacement become equal. (1)

10A. When you look at a coin placed in a vessel on a table and walk backward, the coin disappears from sight.
   a) Suggest a way to see the coin again from the exact same standing position. (1)
   b) Explain the scientific concept behind this activity. (1)

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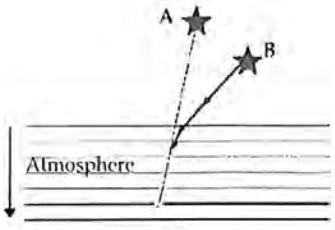
OR

10B. People who hunt fish in a pond using arrows aim slightly below the position where the fish appears to be. Explain the reason behind this? (2)

11A. The sun can be seen for a short time even after it goes below the horizon. Explain the reason for this? (2)

OR

11B. A figure is given related to sky watching.



a) Which letter represents the actual position of the star in the figure? (1)

b) Explain the reason for this phenomenon. (1)

SECTION C

Answer questions 12 to 17. There is a choice for questions 16 and 17. Each question carries 3 scores. (6 x 3 = 18)

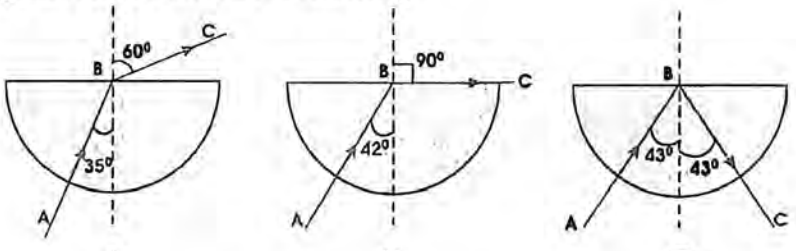
12. The speed of a car starting from rest becomes 5 m/s in 4 seconds and 35 m/s in 10 seconds. Calculate the displacement of the car during the time interval between the 4th second and 10th second. (3)

13. The speed of light in water, glass, and air is given below. Find the refractive index of these mediums using mathematical calculation. Arrange them in the ascending order. (3)

Medium	Speed of Light
Water	2.25×10^8 m/s
Glass	2×10^8 m/s
Air	3×10^8 m/s

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14. Observe the diagram and answer the following:



A B C

a) Identify the diagram that represents total internal reflection from the given figures. (1)

b) Write down two practical applications where total internal reflection is used. (1)

c) Total internal reflection of light is not always possible. Justify this statement. (1)

15. a) A train took 1 hour to travel from place A to place B. Then from B it travelled for half an hour at half of its initial speed and covered a distance of 25 km., calculate the distance from A to B. (2)

b) What is your response to the opinion that, this train is moving with uniform acceleration? (1)

16A.a) Write an example of acceleration from our daily life. (1)

b) If an object dropped from a height of 40 m above from the Moon's surface takes 7 s to reach its ground, calculate the acceleration of the object. (2)

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OR

16B. a) What do you mean by retardation? (1)

b) A bullet fired from a gun hits a wall at a speed of 200 m/s and comes to rest after 4 s. Calculate the retardation of the bullet. (2)

17A. Observe the picture.



a) Which phenomenon is responsible for the broken appearance of the pencil. (1)

b) Write down another daily life situation where this phenomenon is observed. (1)

c) The bottom of a pond appears elevated when viewed from a distance. Explain the reason. (1)

OR

17B. Answer the following.

a) When light travels obliquely from one medium to another with a different optical density, its path deviates at the boundary separating the two media. Name this phenomenon. (1)

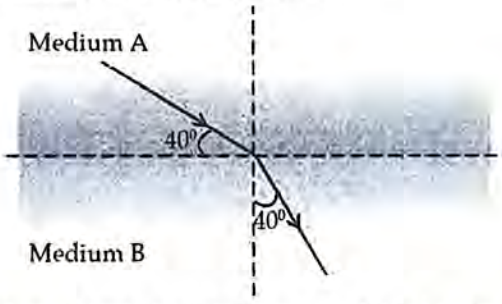
b) Reflectors of vehicles and plane mirrors are working on the basis of same phenomenon of light. Is it correct or not, justify your answer. (2)

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SECTION D

Question 18 has a choice. Answer any one. 4 score. **(1 x 4 = 4)**

18A. Observe the diagram associated with refraction.



a) What is the angle of incidence in the diagram? What is the angle of refraction? (1)

b) Compare the optical densities of both Medium A and Medium B. (1)

c) Complete the ray diagram showing the light ray emerging out of a glass slab. (2)

OR

18B. a) Explain the necessary conditions for light to change its direction when it travels from one medium to another. (2)

b) The light from a laser torch is allowed to fall obliquely on to water in a beaker, which is kept above a glass slab. Depict the path of light travelled through air, water and glass slab. (2)

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