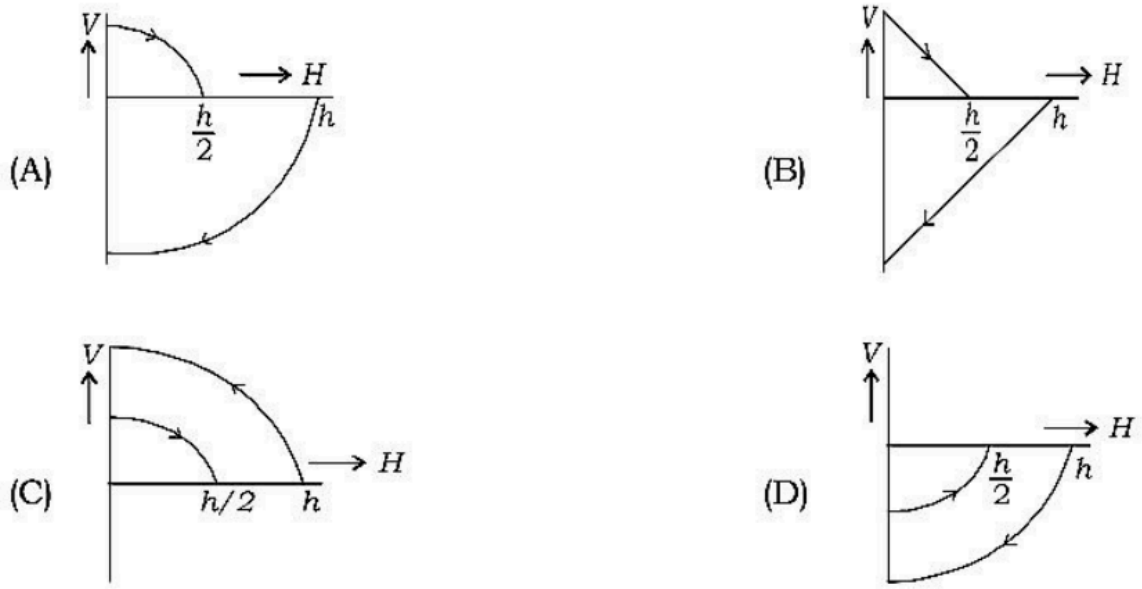
Tripura JEE Physics Sample Paper 2025

1. An object is released from a height of h and after rebound it attains a height of ~ Which of the following velocity (V) vs. height (H) graphs describes this journey correctly? (velocity in the upward direction is positive) -



2. An object is thrown horizontally from the roof of a house at a velocity of 10 m/s. What is the height of the house if the object hits the ground at an angle of 45°?

(A) 10m
(B) 72m
(C) 5m
(D) 36m

3. Aspring of spring constant ‘k’ is divided in such a way that the length of one section is thrice that of the other. The new spring constant of the longer section will be 3k 4k

(A) $\frac{3k}{4}$ (B) $\frac{4k}{3}$

(C) $4k$ (D) $\frac{9}{4}k$

4. When a coin is kept at a distance of 4 cm from the centre of a circular table rotating at an angular velocity of @ around its axis, it starts slipping. If the angular velocity is 2 @ what will be the minimum distance from the centre where the coin will start slipping?

(A) 2 cm
(B) 3cm
(C) 1 cm
(D) 88cm

5. A boat of length L and mass M is floating on a stationary lake water. A person of mass m walks on the boat from one end to the other. Displacement incurred by the boat concerning the bank of the lake is

(A) $\frac{M}{M-m}L$ (B) $\frac{m}{M-m}L$

(C) $\frac{M}{M+m}L$ (D) $\frac{m}{M+m}L$

6. The ratio of radii of two solid metal spheres is 1 : 2. They are released in a stationary uniform viscous liquid. When both achieve terminal velocities, the ratio of their momentum will be -
(A) 1:8
(B) 1:16
(C) 1:32
(D) 1:64

7. Certain volume V of an ideal gas is at a temperature of 27 °C. Keeping its pressure unchanged, at what temperature the volume of the gas will be doubled?

(A) 600 °C

(B) 327°C
(C) 108 °C
(D) 54°C

8. The rms velocity of the molecules of a confined gas is C. Without changing the pressure if the temperature of the gas is increased to three times its initial value, the rms velocity of the gas molecules will become

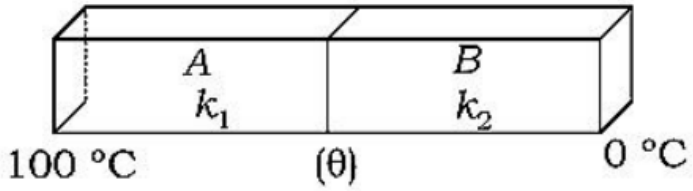
(A) $3C$ (B) $\frac{C}{3}$

(C) $\sqrt{3}C$ (D) $9C$

9. The rail line is being laid at 0 °C with metal beams of length 10 m each and of material having a coefficient of linear expansion 11x 10°/ °C. How much gap has to be kept between consecutive beams if the maximum temperature at that place is 50 °C?

(A) 2°75 mm
(B) 55mm
(C) $25 mm
(D) 11mm

10. Two metal bars A and B having the same length and cross-section are joined in series as shown. If the ratio of their thermal conductivities k, k= 2: 3 and the end temperatures are respectively 100 °C and O°C, then the temperature at the junction (θ) is -



(A) 60 °C (B) 50 °C

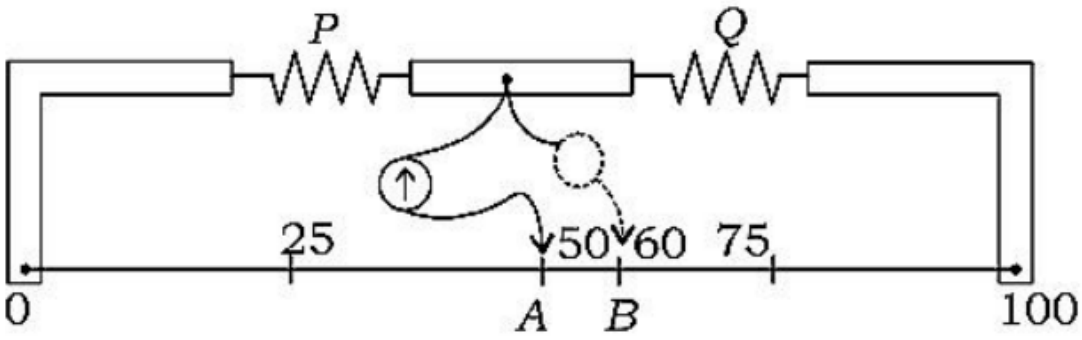
(C) 40 °C (D) 30 °C

11. A tuning fork produces 5 beats each when in proximity to a sonometer wire of two different lengths 40 cm and 44 cm. The frequency of the tuning fork is

(A) 90 Hz
(B) 105 Hz
(C) 130 Hz
(D) 145 Hz

12. 1000 identical spherical mercury droplets are charged to achieve 1 V electric potential each. If all the droplets are fused to form a single mercury sphere, its resultant electric potential will be -

(A) 1V
(B) 10V
(C) 100 V
(D} 1000 V



13. When two equal unknown resistances Y, each are inserted in the gaps P and Q of the meter bridge as shown, the null appears at the middle A. But if a 10 resistance is connected parallel to Yat Q, the null shifts 10 cm to the right at Bas shown. The value of Y is -

(A) 20Ω (B) 15Ω

(C) 10Ω (D) 5Ω

14. The radius of curvature of a planoconvex lens is 25 cm. If the refractive index of the glass used is 1:5, the power of the lens in the diopter unit is -

(A) 2
(B) 3
(C) 4
(D) 8

15. The mass of a radioactive sample is 10-38 kg. If the half-life of the sample is 3-8 days, then how much of the sample is retained after 19 days?

(A) O-151 kg
(B) 0-16 kg

(C) 0:32 kg
(D) 1-51 ke