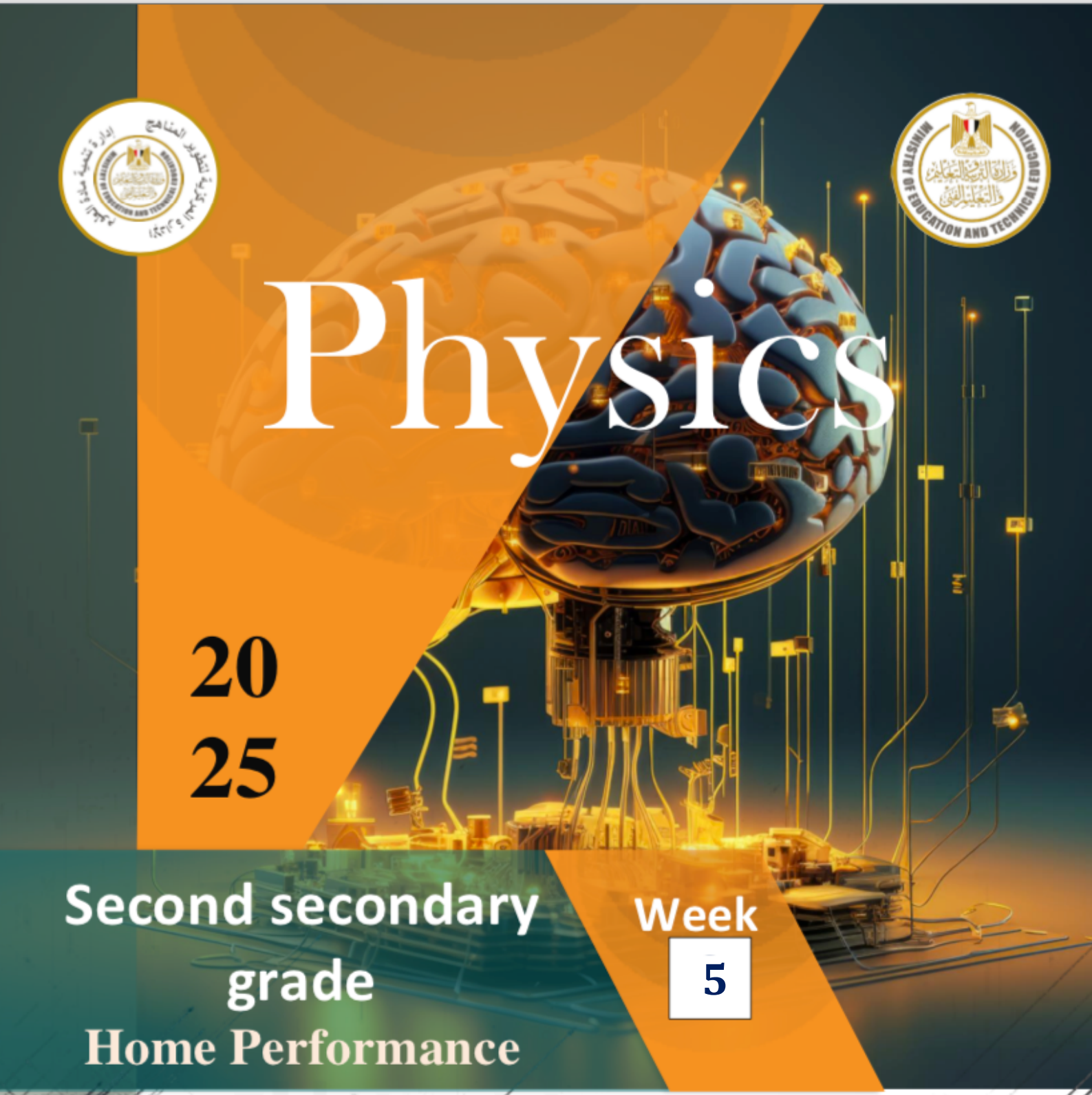
Physics



2025

Second secondary grade

Home Performance

Week 5

Prepare and review

Science Development Office

® Multiple Choice Questions

1) Two balls (A, B) The mass of ball (A) is three times the mass of ball (B), and its radius is equal to the diameter of ball (B). Then the ratio of the density of ball (A) to the density of ball (B) (ρ_A/ρ_B) is equal to:

(A) 3/8

(B) 5/3

(C) 2/3

(D) 8/3

2) An aluminum cube has a mass of 27 kg (density of aluminum is 2700 kg/m^3), then the side length = ...

(A) 0.22m

(B) 0.32m

(C) 0.44m

(D) 0.56m

3) The opposite figure represents four equal volumes of different objects 1, 2, 3, 4. Which object has the highest relative density?

(A) (1)

(B) (2)

(C) (3)

(D) (4)

4) When measuring the density of equal volumes of different blood samples, if the density of blood for a healthy person is 1060 kg/m^3 and the volume of the blood sample is 2.076×10^{-5} m^3, then the blood sample for a person with anemia is ….

(A) (1)

(B) (2)

(C) (3)

(D) (4)

Sample	1	2	3	4
Mass (gm)	21	22	23	24

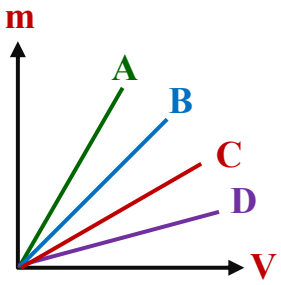
5) **The following graph represents the relationship between the mass and volume of blood for four people with anemia. Which person has the highest incidence of the disease?**

(A) B

(B) D

(C) A

(D) C



6) **Two equal masses of different substances (A, B), if the ratio of their densities is $\rho_A/\rho_B = 3/4$, then the ratio of the volume of the two substances is $(V_{ol})_A/(V_{ol})_B$ is ….**

(A) 1/3

(B) 1/4

(C) 3/4

(D) 4/3

7) **In the laboratory for testing the concentration of salts in urine, the results for four people were as follows:**

Person	A	B	C	D
$(Kg/m^3)\rho_{urine}$	1020	1030	1010	1019

Which of the above people has increased salts in the urine?

(A) Person (D)

(B) Person (B)

(C) Person (A)

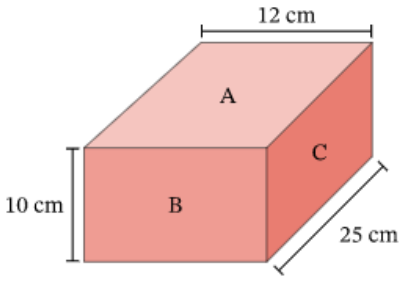
(D) Person (C)

8) The wooden table has a surface area of 1.6 m × 2 m. What is the compressive force exerted by the atmospheric air on the table surface?
(Knowing that $P_a = 1.013 \times 10^5$ N/m²)

(A) 1.013×10^5 N
(B) 3.24×10^5 N
(C) 0.317×10^5 N
(D) 0.324×10^5 N

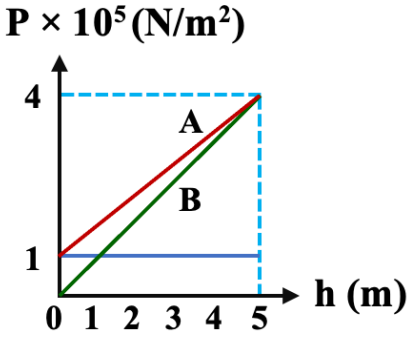
9) A man standing with both his feet on the ground, which of the following activities causes an increase in the pressure of which the man affects the ground?
(A) When the man bows slowly.
(B) When the man lies horizontally on the ground.
(C) When the man raises both of his arms slowly.
(D) When the man stands with one foot on the ground.

10) A brick with dimensions 10 cm, 25 cm and 12 cm is put on a horizontal surface, as shown in the figure. On which face should the brick stand so that it applies the least pressure on the surface?



(A) Face A
(B) Face B
(C) Face C
(D) The pressure is the same for all faces.

11) In the opposite graph
A, B are two different liquids. The ratio ($\frac{\rho_B}{\rho_A}$) is ……



(A) 5/4
(B) 4/5
(C) 4/3
(D) 3/4

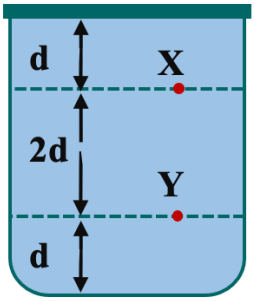
12) In the figure, a tank is filled with a liquid. If the pressure of the liquid at point (X) is 3 bar, the pressure at point (Y) is ..... .

(A) 9 bar

(B) 4.5 bar

(C) 6 bar

(D) 12 bar



13) Some animals can dive to a depth of 1 km. What is the total pressure they can withstand at this depth? (1atm = 10^5 N/m^2, ρ_{sea} = 1020 kg/m^3).

(A) 9 atm

(B) 90 atm

(C) 101 atm

(D) 111 atm

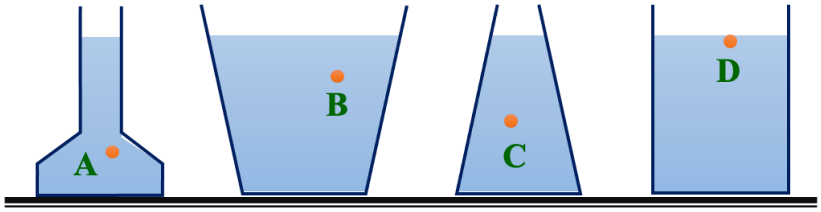
14) If a set of vessels are filled with water as shown in the figure, the correct arrangement of points A, B, C, D according to pressure is?

(A) $P_A > P_B > P_C > P_D$

(B) $P_D > P_C > P_B > P_A$

(C) $P_A > P_C > P_B > P_D$

(D) $P_D > P_B > P_C > P_A$



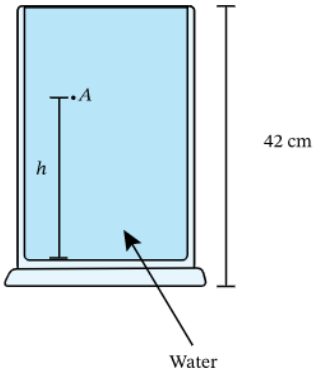
15) The given figure shows a glass container of height 42 cm, completely filled with water. If the pressure due to water on point *A* is *P* and that at the base of the container is 3*P*, then height h from the base of the container to point *A* is equal to

(A) 14 cm

(B) 28cm

(C) 37cm

(D) 21 cm



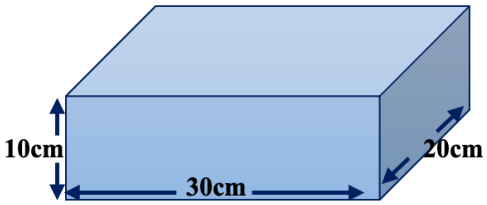
© Essay Questions

16) A cuboid with dimensions 30 cm × 20 cm × 10 cm and a material density of 2700 kg/m³ is placed on a horizontal table as shown in the diagram. Calculate:

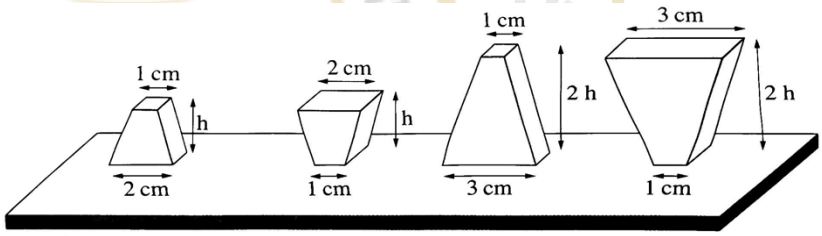
(a) The pressure exerted by the cuboid?

(b) The maximum pressure exerted by the cuboid?

(c) How should the cuboid be placed to generate the maximum pressure?



17) The following figures show four metallic bodies of the same metal having the same thickness. If they are put on the same horizontal surface, which of them is acting by the largest pressure on the surface?



(A) (B) (C) (D)