

2026

GIFT



November Tests



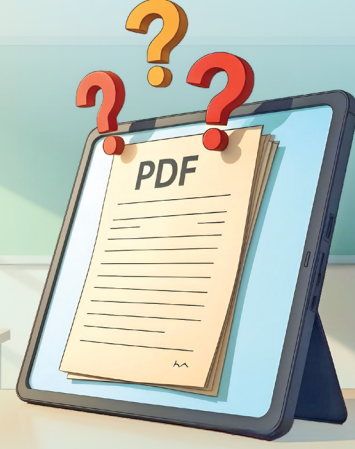
PHYSICS

2nd SEC.
FIRST TERM

November Tests (Electronic - Paper)

مقدّمة كهدية من كتب EL-MOASSER

من خلال : الكمبيوتر - الهاتف المحمول- السبورة الذكية
يمكنك حل الاختبار بطريقة سهلة وممتعة
من خلال التعليمات التالية:



أولاً : طريقة تشغيل الملف

يمكنك حل الاختبار بأحد الطريقتين:

على الهاتف المحمول

قم بتحميل تطبيق

WPS Office

على الكمبيوتر

افتح الملف باستخدام برنامج

Adobe Acrobat Reader



ثانياً : الحل الإلكتروني

أ. أسئلة الاختيار من متعدد (Multiple Choice).

اضغط على الاختيار الذي تراه صحيحًا.

إذا كانت الإجابة خاطئة

ستظهر علامة خطأ

إذا كانت الإجابة صحيحة

ستظهر علامة صح



أ. الأسئلة المقالية (Essay Questions).

- للتأكد من إجابتك، اضغط على زر «Show answer» لعرض الحل.
- يمكنك إخفاء الحل مرة أخرى بالضغط على زر «Hide answer».

اكتب إجابتك في المستطيل المخصص تحت السؤال



ثالثاً : الحل الورقي والطباعة

يمكنك حل الاختبار بإحدى الطريقتين:

وإذا أردت طباعة الملف بالإجابات

قم بحل الاختبار أولاً.
احفظ الملف بعد الانتهاء.
ثم اطبعه متضمنًا الإجابات.

إذا رغبت في حل الاختبار وورقيًا

يمكنك فتح الملف عن طريق برنامج
 Adobe Acrobat Reader
ثم الطباعة من نفس البرنامج.
الإجابات موجودة في نهاية الملف

6 A layer of viscous liquid of thickness 2.5 mm covers a ceramic floor. If a square plate of area of 0.1 m² slides on it at a uniform velocity of 0.5 m/s due to a tangential force of 35 N, the viscosity coefficient of the liquid equals

(a) 0.75 N.s/m² (b) 1.25 N.s/m² (c) 1.75 N.s/m² (d) 2.25 N.s/m²

7 Firefighters use hoses with narrow nozzles when extinguishing fires because the speed of water ejection

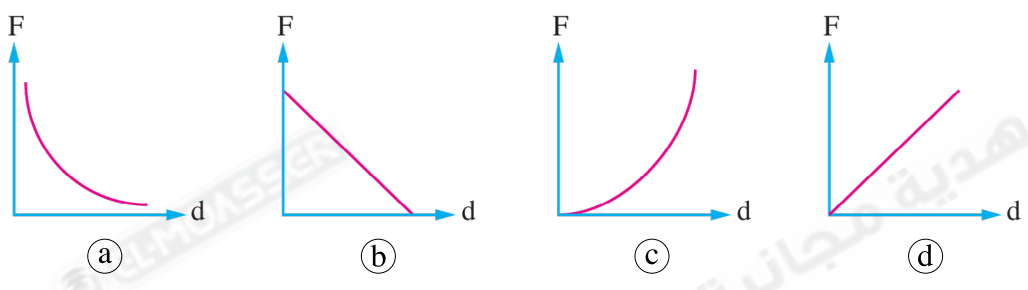
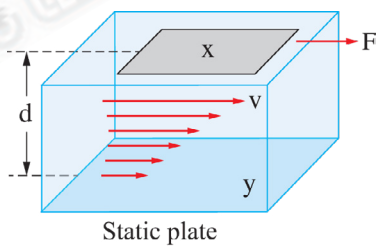
(a) increases as the cross-sectional area decreases
 (b) decreases as the cross-sectional area decreases
 (c) increases as the cross-sectional area increases
 (d) is constant regardless of the change in cross-sectional area

8 A dry, empty container has a mass of 190 g. When it gets filled with a liquid of relative density 0.81, the total mass of the container and the liquid together becomes 400 g. If this container is filled with water, the approximate total mass of the container and water becomes

(Given that: density of water = 1 g/cm³)

(a) 299 g (b) 349 g (c) 399 g (d) 449 g

9 A plate x is required to be moved at a uniform velocity (v) on the surface of a liquid parallel to a static plate y as shown in the opposite figure. Which of the following graphs represents the relation between the force (F) required to move plate x at the uniform velocity v and the distance (d) between the two plates?



10 At inhalation, the air flows through the trachea with a speed of 15 cm/s. If the cross-sectional area of each of the two branches of the trachea is quarter that of the main trachea and considering the air flow is steady, the speed of the air flow in each branch is

(a) 7.5 cm/s (b) 15 cm/s (c) 30 cm/s (d) 45 cm/s

11 Two equal volumes of two different, non-reacting liquids with densities of 1000 kg/m^3 and 2000 kg/m^3 are mixed. Neglecting the change in volume due to mixing, the density of the mixture is

- (a) 3000 kg/m^3 (b) 1500 kg/m^3 (c) 1350 kg/m^3 (d) 1200 kg/m^3

12 In which of the following figures the pressure exerted by the weight of the child on the ground is the highest?



(a)



(b)



(c)

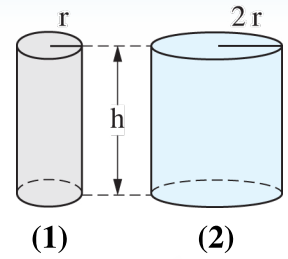


(d)

Answer the following questions (13 : 15):

13 Aquatic plants grow close to the riverbanks. **Explain.**

14 The opposite figure shows two solid cylinders of different metals having the same mass, **so calculate** the ratio between the densities of the metals of the two cylinders $\left(\frac{\rho_1}{\rho_2}\right)$.

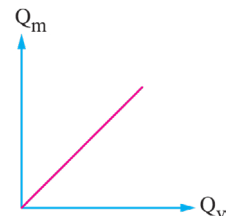


15 The soldier mounts the stock (back) of the rifle firmly against his shoulder. **Explain.**

Test 2 Answered

Choose the correct answer (1 : 12):

1 The opposite graph represents the relation between the mass flow rate (Q_m) and the volume flow rate (Q_v) for a liquid that flows steadily in many tubes, then the slope of the straight line represents

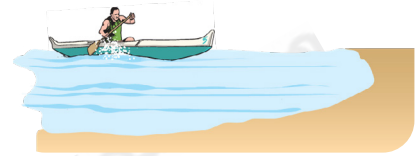


- (a) the pressure of the liquid
- (b) the temperature of the liquid
- (c) the speed of the liquid flow
- (d) the density of the liquid

2 A beaker has a mass of 1 kg when it is completely filled with water. If a solid object of mass 375 g is put in the beaker, it displaces 40 g of water outside the beaker, so the relative density of the material of the object equals

- (a) 7.925 (b) 8.82 (c) 9.375 (d) 10.5

3 In the opposite figure, as the boat gets closer to the shore while keeping its speed constant, the athlete needs to



- (a) row with a less force (b) row with a greater force
(c) row with the same force (d) stop rowing

4 If the Earth exerts a gravitational force of 600 N on you, your body exerts a gravitational force on the Earth of a magnitude that is

- (a) zero (b) less than 600 N (c) 600 N (d) greater than 600 N

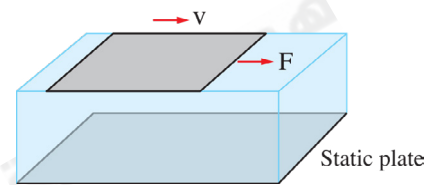
5 A liquid flows steadily through a main pipe x, of cross-sectional area 26 cm^2 , which branches into two pipes, y and z, of cross-sectional areas 15 cm^2 and 7 cm^2 , respectively. If the liquid speed in pipes x and y is 0.4 m/s and 0.6 m/s , respectively, then the speed of the liquid flow in pipe z equals

- (a) 0.2 m/s (b) 0.3 m/s (c) 0.5 m/s (d) 0.7 m/s

6 The ratio of the density of electrolyte solution in a car battery after discharging the battery to its density after recharging it is

- (a) greater than 1 (b) equal to 1
(c) less than 1 (d) the answer cannot be determined

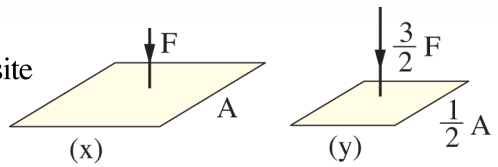
7 A layer of liquid (x) is placed between two plates, then a tangential force of 100 N is applied to the upper plate, causing it to move at a constant velocity of 0.2 m/s , as shown in the opposite figure. When the layer of liquid (x) is replaced with another liquid (y) of the same thickness, a tangential force of 50 N causes the upper plate to move at a constant velocity of 0.4 m/s , then the ratio between the viscosity coefficients of the two liquids $\left(\frac{\eta_{vs,x}}{\eta_{vs,y}}\right)$ is



- (a) $\frac{1}{1}$ (b) $\frac{1}{2}$ (c) $\frac{2}{1}$ (d) $\frac{4}{1}$

8 Two plane surfaces (x, y) have areas $A, \frac{1}{2}A$, each of them is

affected by a perpendicular force as shown in the opposite figure, so which of the following choices is correct?



- (a) $P_x > P_y$ (b) $P_x < P_y$ (c) $P_x = P_y$ (d) Indeterminable.

9 A square plate with a side length of 10 cm slides over another stationary plate and between the two plates there is a layer of a viscous liquid with a viscosity coefficient of $1.2 \text{ N}\cdot\text{s}/\text{m}^2$. If the upper plate moves at a constant speed of 0.2 m/s due to a tangential force of 0.6 N, the thickness of the liquid layer is

- (a) 1 mm (b) 2 mm (c) 3 mm (d) 4 mm

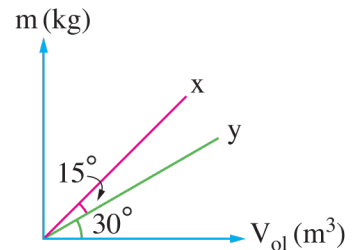
10 A pipe of radius 3.5 cm has water flowing steadily through it at a speed of 3 m/s into a cubic tank of side length of 226 cm, so the time required to fill the tank is approximately equal to

- (a) 900 s (b) 1000 s (c) 1100 s (d) 1200 s

11 The opposite figure represents the graphical relation between mass (m) and volume (V_{ol}) for two materials x, y, then the ratio between the densities of the two materials

$\left(\frac{\rho_x}{\rho_y}\right)$ equals

- (a) 0.46 (b) 2.15
(c) $\frac{1}{\sqrt{3}}$ (d) $\sqrt{3}$



12 A stationary book placed on a table exerts a downward force on it, so the reaction force to this force is

- (a) the force exerted by the Earth on the book
(b) the force exerted by the table on the book
(c) the force exerted by the Earth on the table
(d) the force exerted by the book on the Earth

Answer the following questions (13 : 15):

13 The openings of the gas stove are made small. **Explain.**

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14 If a force of 15 N acted on a surface of area 2 cm^2 such that the direction of the force makes an angle of 30° with the normal to the surface, **calculate** the pressure on the surface.

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15 An iron cube has a side length of 12 cm and a mass of 7 kg. If you know that the density of iron is 7800 kg/m^3 , **determine** whether this cube is solid or hollow.

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Test 3 Answered

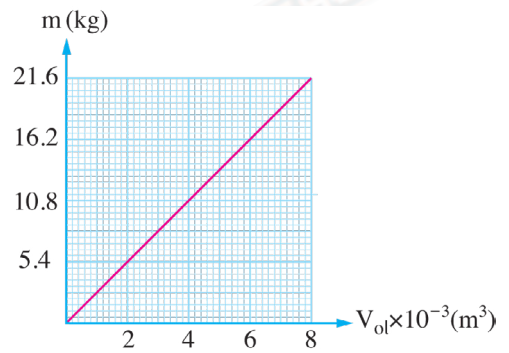
Choose the correct answer (1 : 12):

1 If the relative density of glycerin is 1.26, then the mass of 1 liter of it equals kg.
 (Given that: $\rho_{\text{water}} = 1000 \text{ kg/m}^3$)
 (a) 1260 (b) 1.26 (c) 1.26×10^{-3} (d) 12.6

2 The number of streamlines of a liquid which passes perpendicularly through a unit area surrounding a certain point indicates
 (a) the liquid speed at that point (b) the volume flow rate
 (c) the mass flow rate (d) the liquid density

3 A book rests on a tabletop placed on the Earth's surface. If the Earth affects the book by an attraction force $\vec{F}_1 = 10 \text{ N}$, so the table affects the book by a force (\vec{F}_2) equal to
 (a) 10 N (b) 100 N (c) - 10 N (d) - 100 N

4 The opposite graph shows the relation between the masses of a group of bodies made of a definite substance and the volume of each of them at 0°C . By using the following table that shows the densities of some substances at 0°C , these bodies are made of

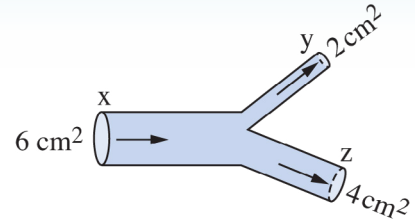


- (a) iron
- (b) aluminum
- (c) copper
- (d) gold

Substance	Density (kg/m^3)
Iron	7900
Aluminum	2700
Copper	8900
Gold	19300

5 A tangential force acts on a polished plate, causing it to slide at a constant velocity on a layer of viscous liquid covering a hall floor. If the magnitude of this force is doubled, the liquid viscosity coefficient
 (a) decreases to a quarter (b) decreases by half
 (c) doubles (d) does not change

6 In the opposite figure, the speeds of the steady flow of water at x and z are 8 m/s and 4 m/s respectively, then its speed at y is



- (a) 16 m/s
- (b) 12 m/s
- (c) 8 m/s
- (c) 6 m/s

7 A man of weight w is standing on the ground with both of his feet. If the contact area of each foot with the ground is A , the man affects the ground with a pressure that equals

- (a) $\frac{2w}{A}$
- (b) $\frac{w}{A}$
- (c) $\frac{w}{2A}$
- (c) $\frac{w}{4A}$

8 The statement that does **not** apply to the forces of action and reaction is

- (a) the magnitude of the action force = the magnitude of the reaction force
- (b) the action force opposes the reaction force
- (c) the action force and the reaction force act on the same body
- (d) the action force and the reaction force act on two different bodies

9 A man sits on a chair of four legs while his feet don't touch the ground, so if the mass of both the man and the chair together is 95 kg and the legs of the chair have circular ends, each of radius 0.5 cm, then the pressure that each leg produces on the ground equals

(Take: $g = 9.8 \text{ m/s}^2$)

- (a) $2.96 \times 10^6 \text{ Pa}$
- (b) $5.92 \times 10^6 \text{ Pa}$
- (c) $11.85 \times 10^6 \text{ Pa}$
- (d) $14.81 \times 10^6 \text{ Pa}$

10 A solid iron cube has a side length of 10 cm and a mass of 7.72 kg, and a solid gold cuboid has dimensions 20 cm, 10 cm, 5 cm and a mass of 19.3 kg. The ratio between the

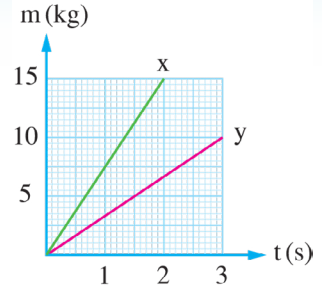
density of iron and the density of gold ($\frac{\rho_{\text{Fe}}}{\rho_{\text{Au}}}$) is

- (a) $\frac{3}{10}$
- (b) $\frac{2}{5}$
- (c) $\frac{3}{5}$
- (d) $\frac{3}{4}$

11 A layer of a viscous liquid of thickness 8 cm is put between two parallel horizontal plane plates. If the viscosity coefficient of the liquid is 0.8 kg/m.s, then the force required to move a thin plate of area 0.5 m² between the two plates, parallel to them with a uniform speed of 2 m/s and at a distance of 2 cm from one of them equals

- (a) 13.33 N
- (b) 26.67 N
- (c) 40.52 N
- (d) 53.33 N

12 Two liquids x, y flow steadily in two different tubes of the same cross-sectional area with two different speeds $1.25v$ and v respectively. The opposite graph represents the relation between the mass (m) of the liquid which flows through the cross-section of each tube and the flow time (t), then the ratio between the densities of the two liquids $\left(\frac{\rho_x}{\rho_y}\right)$ equals



- (a) $\frac{9}{5}$ (b) $\frac{3}{2}$ (c) $\frac{2}{3}$ (d) $\frac{5}{9}$

Answer the following questions (13 : 15):

13 Having anemia can be diagnosed by measuring the density of blood. **Explain.**

14 Honey flows faster in summer than in winter, **what** is the reason for this?

15 If water flows steadily with a speed of 1 m/s inside a tube of diameter 10 cm , **calculate** the mass of water that flows every minute through the tube. (Knowing that: The density of water = 1000 kg/m^3 , $\pi = 3.14$)

Answers of November Tests ✓

Answers of Test 1

Question no.	1	2	3	4	5	6	7	8
Answer	b	b	d	c	a	c	a	d

Question no.	9	10	11	12
Answer	a	c	b	b

- 13** Near the riverbanks, the depth of the water is shallow, meaning the distance (d) between the moving surface layer and the stationary bottom layer decreases. Since the viscous friction force is inversely proportional to this distance ($F \propto \frac{1}{d}$), the friction between the water layers increases significantly near the riverbanks. This high friction hinders (resists) the water flow, causing the speed (v) of the water to decrease. A lower water speed means there is less drag force acting on the plants, which reduces the chances of them being uprooted compared to the center of the river where the current is faster.

$$14 \quad \therefore \rho = \frac{m}{V_{ol}} = \frac{m}{\pi r^2 h}$$

\therefore Magnitude of each of m, h is constant.

$$\therefore \rho \propto \frac{1}{r^2}$$

$$\therefore \frac{\rho_1}{\rho_2} = \frac{r_2^2}{r_1^2} = \frac{(2r)^2}{(r)^2} = \frac{4}{1}$$

- 15** To decrease the recoil velocity of the rifle backwards, which occurs as a reaction to the projectile being ejected forwards.

Answers of Test 2

Question no.	1	2	3	4	5	6	7	8
Answer	d	c	b	c	a	c	d	b

Question no.	9	10	11	12
Answer	d	b	d	b

- 13** Because according to the continuity equation ($A_1 v_1 = A_2 v_2$), the flow speed of a fluid is inversely proportional to the cross-sectional area of the tube, hence when the cross-sectional areas of the gas stove holes are small, the speed at which the gas rushes out from the openings becomes high.

$$14 \quad P = \frac{F \cos (\theta)}{A} = \frac{15 \cos 30}{2 \times 10^{-4}} = 64.95 \times 10^3 \text{ N/m}^2$$

$$15 \quad \rho = \frac{m}{V_{ol}} = \frac{m}{l^3} = \frac{7}{(12 \times 10^{-2})^3} = 4050.93 \text{ kg/m}^3$$

\therefore The calculated density is less than the density of iron.

\therefore The cube is hollow.

Answers of Test 3

Question no.	1	2	3	4	5	6	7	8
Answer	b	a	c	b	d	a	c	c

Question no.	9	10	11	12
Answer	a	b	d	a

- 13** Because a decrease in blood density from its normal density indicates a decrease in the concentration of red blood cells, and consequently, anemia.

- 14** Because the viscosity of liquids decreases as the temperature increases.

$$15 \quad V_{ol} = Q_v t = Avt = \pi r^2 v t$$

$$= 3.14 \times (5 \times 10^{-2})^2 \times 1 \times 60$$

$$= 0.471 \text{ m}^3$$

$$m = \rho V_{ol} = 1000 \times 0.471 = 471 \text{ kg}$$