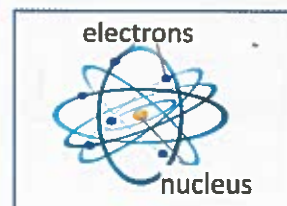


1st Question

40

Place a sign (✓) inside the box to the left of the most appropriate answer for each of the following:

1- The figure shows the structure of the atom as conceived by the physicist Rutherford as a result of his research. What **form** does the figure represent?



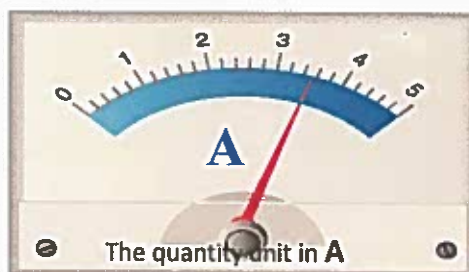
- ☐ Theory of the atom ☐ Hypothesis of the atom
☐ Model of the atom ☐ Law of the atom

2- A period of time is $(6.0 \times 10^{-9} s)$, which of the following is **true** for this period using prefixes?

- ☐ $6.0 \mu s$ ☐ $6.0 ns$ ☐ $6.0 Gs$ ☐ $6.0 Ms$

3- What is the **name** of the physical quantity that the instrument measures in the figure and what is the **correct** value of the measurement ?

	Correct value	The quantity
☐	3.3 A	Electric Current
☐	3.5 A	Electric Current
☐	3.3 A	Luminous intensity
☐	3.5 A	Luminous intensity



4- Depending on the equation:

$$y = \left(0.06 \frac{cm}{g}\right)x + 0.15 cm$$

What is the **name** of the physical quantity and its **unit** for the symbol (x) in equation?

	Quantity unit	Quantity name
☐	gram	mass
☐	kilogram	mass
☐	centimeter	length
☐	meter	length

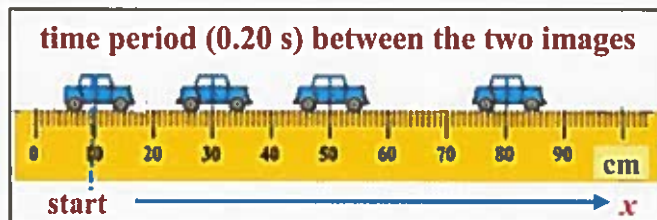
5- Depending on the motion of the vehicle in the figure. Which of the following is **true** for the particle model of the vehicle ?

	End	Start
☐	• • • •	• • • •
☐	• • • •	• • • •
☐	• • • •	• • • •
☐	• • • •	• • • •



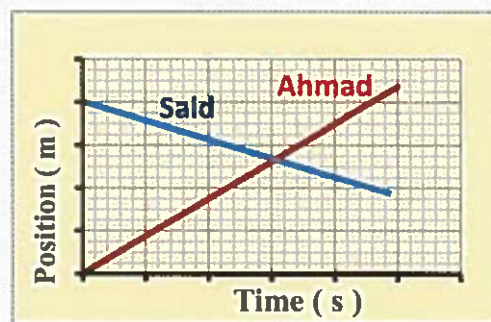
6- Depending on the movement of the car in the figure,. What is the **displacement** of the car after (0.60 s) from the beginning of its movement?

- ☐ +70 cm ☐ +80 cm
☐ -70 cm ☐ -80 cm



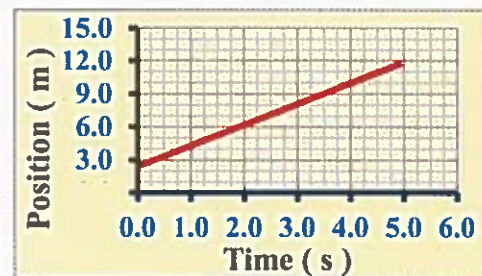
7- Depending on the (position - time) graph for the motion of Ahmad and Said . Which of the following are **true** for the motion of Ahmad and Said?

	Meet during the motion	Direction of motion
☐	no	same direction
☐	yes	same direction
☐	no	opposite directions
☐	yes	opposite directions



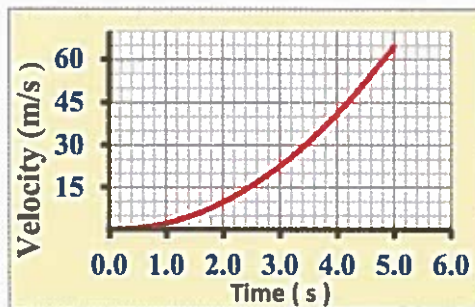
8- Depending on the (position - time) graph for an object. What is its **average velocity** ?

- ☐ + 1.8 m/s ☐ + 2.4 m/s
☐ - 1.8 m/s ☐ - 2.4 m/s



9- Depending on the graph for an object motion . What is the **magnitude of instantaneous acceleration** when (t = 3.0 s)?

- ☐ 0.0 m/s²
☐ 5.0 m/s²
☐ 7.5 m/s²
☐ 15 m/s²



10- A mass of (15 kg) on a weight scale in an elevator floor.

What is the **reading** recorded by the scale when the elevator moves with an acceleration (2.0 m/s²) to upward ?

- ☐ 117 N ☐ 147 N
☐ 0.0 N ☐ 177 N

11- The final position of a ball movement is given from equation

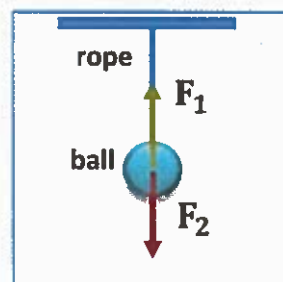
$$[x_f = 0.60 + 3.0 t + 2.0 t^2]$$

(Physical quantities in the equation measured by international units)

What are the **initial position** and **acceleration** for a ball?

	Acceleration	Initial position
☐	2.0 m/s^2	0.60 m
☐	4.0 m/s^2	0.60 m
☐	4.0 m/s^2	3.0 m
☐	2.0 m/s^2	3.0 m

12- Which of the following is **true** for F_1 and F_2 in the figure?



- ☐ F_1 field force and F_2 contact force
- ☐ F_2 field force and F_1 contact force
- ☐ F_1 and F_2 field forces
- ☐ F_1 and F_2 contact forces

13- A key chain falls to the ground from an edge of a window in Dubai, it reaches the ground after **(3.0 s)** , (neglecting air resistance). What is **the height** of the window edge from the ground ?

- ☐ 29 m
- ☐ 15 m
- ☐ 88 m
- ☐ 44 m

14- Which of the following is **not true** for an interaction pair depending on Newton's third law?

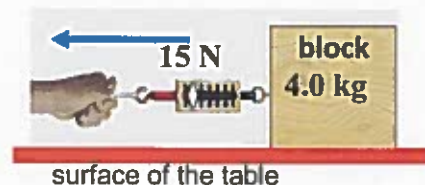
- ☐ exerted in the same time
- ☐ are equal in magnitude
- ☐ in the opposite direction
- ☐ in the same direction

15- A box is pushed on a rough surface and is moved from its position to another position. Which of the following is physical **vector** quantity ?

- ☐ the mass of the box
- ☐ the distant a box moved
- ☐ the friction force act on the box
- ☐ the time a box moved

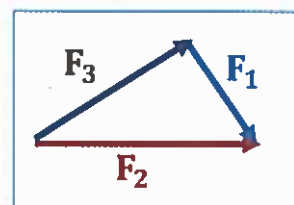
16- In the figure, the block moves at a constant velocity. What is the **magnitude** of the coefficient kinetic friction between the surface of the block and the surface of the table?

- ☐ 0.81 ☐ 0.38
☐ 0.65 ☐ 0.27



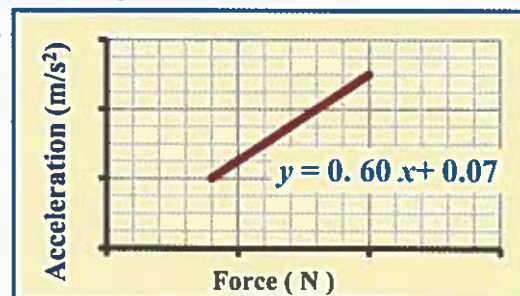
17- Which forces in the figure represent the **resultant** of the other two forces?

- ☐ F_1 ☐ F_2
☐ F_3 ☐ not any of the forces



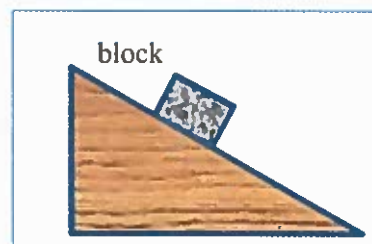
18- Depending on the straight line equation in the graph showing changes in the net force acts on an object and its acceleration. What is the **mass** of the object ?

- ☐ 0.070 kg
☐ 0.60 kg
☐ 1.7 kg
☐ 14 kg



19- In the figure, the block is moving on an inclined plane by its weight. Which of the following is **correct** for the block motion ?

- ☐ moving with constant velocity
☐ moving with constant acceleration
☐ moving equal distances in equal time intervals
☐ moving with acceleration equal (9.8m/s^2)



20- Depending on the data in the table. Which of the following is **true** about the coefficient of the kinetic friction and the coefficient of the static friction?

- ☐ they are always equal
☐ coefficient of the kinetic friction is always greater
☐ coefficient of the static friction is always greater
☐ the two coefficients are always greater than 1

μ_s	μ_K	Surfaces
1.1	0.15	Cast iron on cast iron
0.94	0.40	Glass on glass
0.61	0.52	Leather on wood
0.78	0.42	Steel on steel

2nd Question

20

21- Depending on the following figure. Answer the questions below:



4

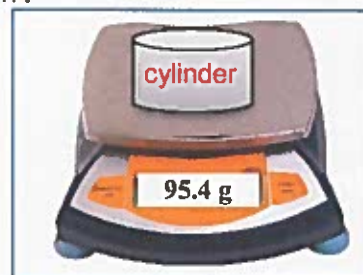
- Write the measurement **length** of the rod by unit (**mm**) including four significant figures .

- Write the measurement of the length of the rod in terms of unit (**m**) and prefix (**k**).

22- Depending on the following figure. Answer the questions below:

- Write the cylinder mass measurement including **uncertainty**.

- If the correct cylinder mass is (85.4 g). Why does the measurement **not** match with the correct mass of the cylinder ?



4

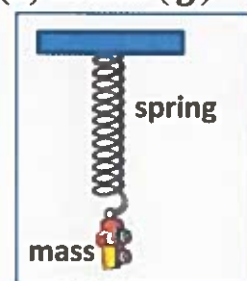
23- The figure shows a spring suspended by a mass ,the relationship between the length of spring (y) in unit (cm) and the magnitude of the suspended mass (x) in unit (g) is given from equation $[y = 0.40 x + 12]$

- What is the name of the physical quantity that represents:

- Independent variable?

- Dependent variable ?

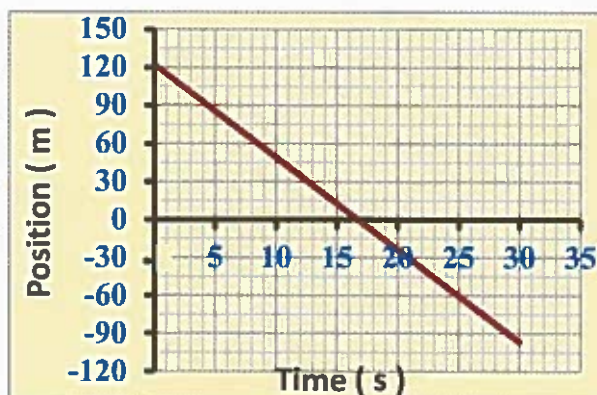
- What is the original length of the spring ?



4

10 Depending on the (position - time) graph of the motion of a car moving west.

24- Calculate the average velocity of the car during the time interval (0 s to 25 s).



8

25- Find the position of the car after (35 s) , when the care continues its motion with the same average velocity

3rd Question



- Depending on the (velocity - time) graph for the motion of Rashid on a bicycle, Rashid began his movement to the east.

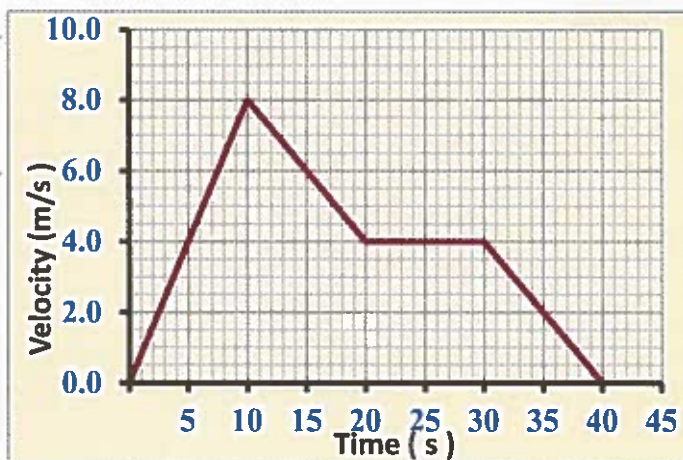
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26- What is the:

- time interval that Rashid moves at a constant velocity ?

- direction of Rashid's movement during the time interval (30 s to 40 s)?

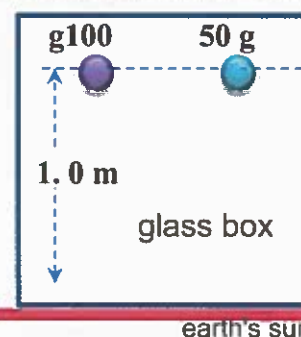
27- Calculate the acceleration of Rashid's motion during the time interval (10 s to 20 s).



28- Calculate the displacement of Rashid after (10 s).



- Two balls in an empty glass box of air on the ground as shown in the figure, if the two balls start falling together

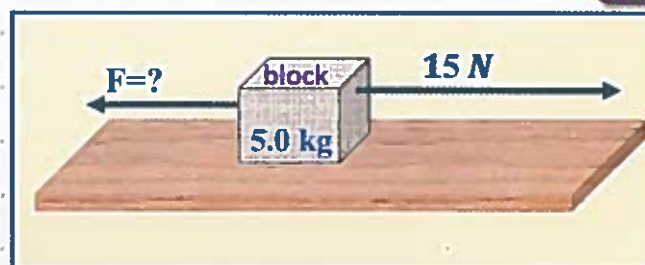


29- Which ball will reach the bottom of the box first? And why?



- In the figure, a block is moving with acceleration (2.0 m/s^2) by two forces.

30- Calculate the magnitude of force (F).

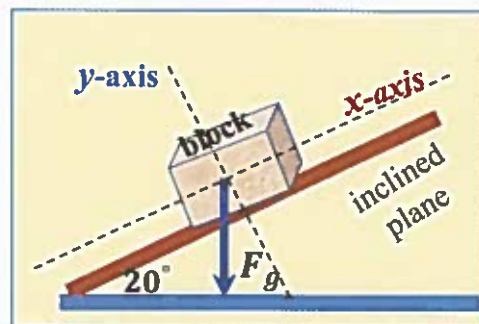


4th Question

20

– The figure shows a block has a mass (1.5 kg) is resting on the rough surface of an inclined plane.

31– Calculate the coefficient of static friction between the block and the rough surface .



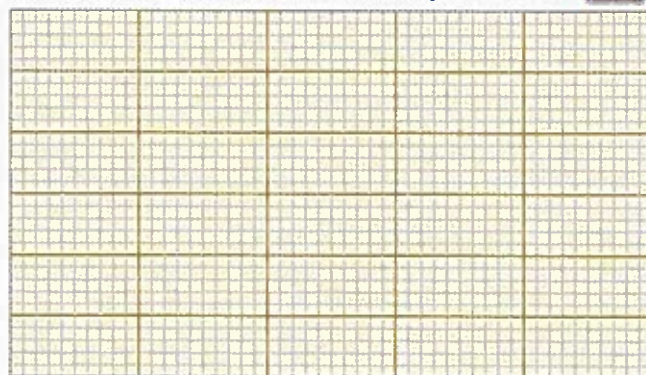
6

32- Sarah moved (50 m) south then (60 m) to the west and stopped.

- Draw the two displacements represented by Sarah.

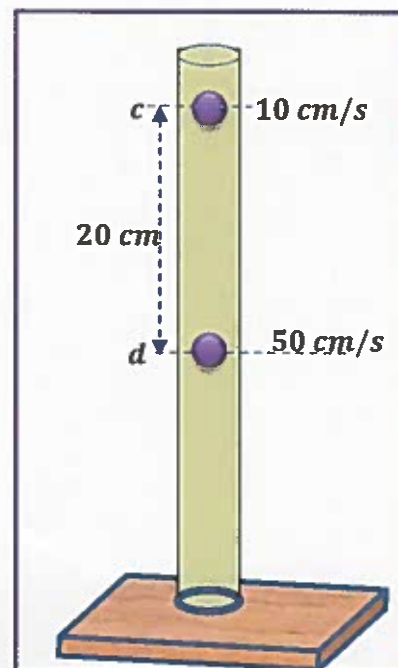
- Calculate the magnitude and the direction of the resultant displacement done by Sarah.

6



– A glass tube filled with liquid and placed vertically on a table , a ball with a mass (300 g) is moving inside the tube as in the figure , (assume the drag force exerted on a ball is constant)

33- Calculate the acceleration of the ball's motion.



8

34- Calculate the drag force exerted on a ball.

The End



المادة : الفيزياء

عدد صفحات الامتحان: (7)

الصف : الحادي عشر

المسار : العام

امتحان نهاية الفصل الدراسي الأول
للعام الدراسي 2017 / 2018 م

✓ أجب عن جميع الأسئلة وعلى الورقة نفسها.

✓ استعن بالثابت والمعادلات الفيزيائية الواردة في الجدول التالي:

عجلة السقوط الحر ($g = 9.8 \text{ m/s}^2$)	$a = \frac{F_{\text{net}}}{m}$	$a = \frac{\Delta V}{\Delta t}$
$A_x = A \cos \theta$ $A_y = A \sin \theta$	$\theta = \tan^{-1}\left(\frac{R_y}{R_x}\right)$	$V_f = V_i + a \Delta t$
$\mu_k = \frac{F_k}{F_N}$	$F_{\text{المحصلة}} = F_{\text{الميزان}} + (-F_g)$	$X_f = X_i + V_i t_f + \frac{1}{2} a t_f^2$
$\mu_s = \frac{F_s}{F_N}$	$R^2 = R_x^2 + R_y^2$	$V_f^2 = V_i^2 + 2a (X_f - X_i)$