



Science

Prep.2

Second Term 2025 - 2026

March Revision

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Unit One + Unit Two (L1)

*** طبقاً لأخر تعديل في المادة للعام الدراسي 2025-2026 ***



March Revision

Mr. Ahmed Elbasha

✱ **(1) Write the scientific term:**

- 1) Energy is neither destroyed nor created, but it is transformed from one form to another. (.....)

- 2) Reactions that release thermal energy to the surroundings as a product, causing the temperature of the surroundings to rise. (.....)

- 3) The reaction of heating aluminum with red iron oxide. (.....)

- 4) Reactions that require the absorption of thermal energy from the surroundings, causing the temperature of the surroundings to decrease. (.....)

- 5) Flammable materials used in the production of thermal energy as a result of the occurrence of an exothermic reaction. (.....)

- 6) The amount of energy produced from the combustion of 1 g of fuel in excess oxygen gas. (.....)

- 7) The combination of fuel with oxygen, accompanied usually by the emission of light, heat, or both. (.....)

- 8) The combustion of fuel in a limited amount of oxygen gas. (.....)

- 9) The temperature at which fuel begins to ignite. (.....)

- 10) Ignition of materials without the presence of an external source of heat (.....)

- 11) A chemical process in which the percentage of oxygen increases in the substance or the percentage of hydrogen decreases in it. (.....)

- 12) A chemical process in which the percentage of oxygen decreases in the substance or the percentage of hydrogen increases in it (.....)

- 13) The substance that takes away oxygen or gives hydrogen during the chemical reaction. (.....)

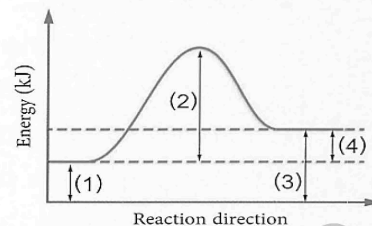
- 14) The substance that gives oxygen or takes away hydrogen during the chemical reaction. (.....)
-
- 15) The total force in magnitude and direction resulting from the effect of a number of forces acting on an object. (.....)
-
- 16) The scientist who formulated the laws of motion and the universal law of gravitation. (.....)
-
- 17) The object keeps its state of rest or motion at a constant velocity in a straight line, unless acted upon by external unbalanced forces that change its state. (.....)
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- 18) The time taken for the moving object to stop. (.....)
-
- 19) The distance travelled by the moving object during the stopping time. (.....)
-
- 20) The change in the velocity of an object per unit time. (.....)
-
- 21) The rate of change of velocity. (.....)
-
- 22) If a net force (F) acts on an object with a mass (m), it causes the object to have an acceleration (a) in the same direction as the net force. (.....)
-
- 23) For every action, there is an equal and opposite reaction. (.....)
-
- 24) A collision between a stationary object and a moving object having the same mass and no loss of kinetic energy occurs. (.....)
-
- 25) A collision between a stationary object and a moving object having the same mass in which kinetic energy is lost. (.....)

*(2) Choose the right answer:

1. All of the following are exothermic processes, except the process.
- a. freezing b. sublimation c. condensation d. deposition
2. Which of these substances, when dissolved in water, is accompanied by releasing thermal energy to the surrounding medium?
- a. Hydrated cobalt chloride. b. Sodium bicarbonate.
c. Ammonium nitrate. d. Sodium hydroxide.
3. All of the following salts lead to a decrease in the temperature of the solution when dissolved in water, except
- a. hydrated copper sulphate. b. sodium bicarbonate.
c. potassium sulphate. d. anhydrous lithium chloride.
4. The person who suffers from swelling in his feet uses a compress containing the solute (X). What is the substance (X)?
- a. Concentrated sulphuric acid. b. Calcium chloride.
c. Sodium hydroxide. d. Ammonium nitrate.
5. In instant hot compresses, the solute is
- a. $MgSO_4$ b. NH_4NO_3 c. $NaHCO_3$ d. K_2SO_4
6. When a strip of aluminum is immersed in dilute hydrochloric acid whose temperature is $25^\circ C$, the temperature of the solution becomes
- a. greater than $25^\circ C$ b. less than $25^\circ C$
c. equal to $25^\circ C$ d. less than or equal to $25^\circ C$
7. Which of the following illustrates the molecular formula of each of limestone (X) and quicklime (Y)?
- a. (X) : CaO , (Y) : $CaCO_3$ b. (X): $CaCO_3$, (Y) : CaO
c. (X): $CaCO_3$, (Y) : CaO d. (X): $CaCO_3$, (Y) : $Ca(OH)_2$
8. In the reaction : $H_2 + Cl_2 \rightarrow 2HCl + \text{heat}$
What is the source of the thermal change in this reaction?
- a. Absorption of energy during forming bonds only.
b. Releasing energy during breaking bonds only.
c. Absorption of energy during breaking bonds and releasing energy during forming bonds.
d. Releasing energy during breaking bonds and absorption of energy during forming bonds.

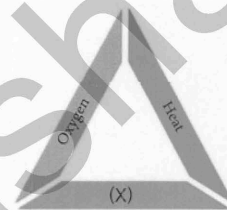
9. According to the opposite energy diagram: What is the number which indicates the amount of energy absorbed from the surroundings in this reaction?

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



10. What does the element (X) represent in the opposite combustion triangle?

- a. Carbon dioxide.
b. Flame.
c. Fuel.
d. Water.



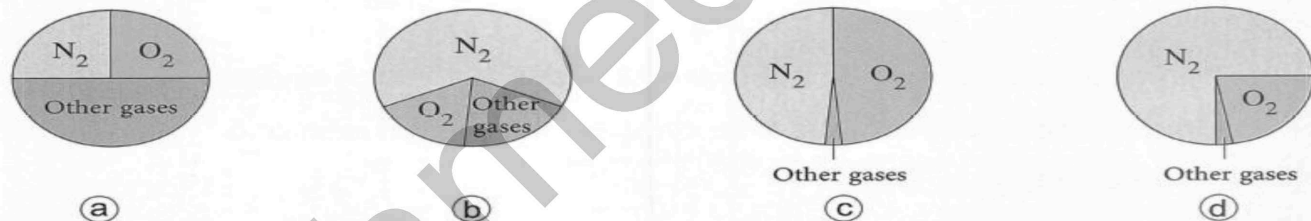
11. All the following are examples of fossil fuel, except

- a. petroleum oil b. ethanol. c. natural gas. d. coal.

12. The main component of natural gas is

- a. methane. b. ethane. c. propane. d. butane.

13. Which of the following figures expresses the percentage of oxygen relative to the other components of atmospheric air?



14. The candle remains lit for a longer time when a cylinder filled with gas is inverted over it.

- a. oxygen b. hydrogen c. carbon dioxide d. nitrogen

15. The combustion temperature of acetylene gas in excess oxygen reaches

- a. 150°C b. 300°C c. 1500°C d. 3000°C

16. All the following are principles of extinguishing, except

- a. removing fuel. b. smothering.
c. isolating of carbon dioxide. d. cooling.

17. The equation: $\text{Mg} + \text{CuO} \xrightarrow{\Delta} \text{MgO} + \text{Cu}$ represents reaction.

- a. combustion b. thermal decomposition
c. acid with alkali d. redox

18. From the reaction: $2\text{Mg} + \text{CO}_2 \rightarrow 2\text{MgO} + \text{C}$ Which of the following is correct?

- a. Both magnesium and carbon dioxide are oxidized.
- b. Carbon dioxide is oxidized and magnesium is reduced .
- c. Magnesium is oxidized and carbon dioxide is reduced.
- d. Both magnesium and carbon dioxide are reduced.

19. What is the oxidizing agent in this reaction : $\text{PbO}_2 + 2\text{H}_2 \xrightarrow{\Delta} \text{Pb} + 2\text{H}_2\text{O}$?

- a. PbO_2
- b. H_2
- c. Pb
- d. H_2O

20. All the following include vector physical quantities, except

- a. acceleration and force.
- b. force and time.
- c. acceleration and mass.
- d. mass and time.

21. The force is measured in units.

- a. newton.
- b. kilogram.
- c. meter.
- d. meter/second

22. When a moving car stops suddenly, the passengers are rushed

- a. forward.
- b. backward.
- c. to the right.
- d. to the left.

23. The continued rotation of the electric fan blades for a period of time after the electric current is switched off is explained by

- a. Newton's first law.
- b. Newton's second law.
- c. action and reaction force law.
- d. universal law of gravitation.

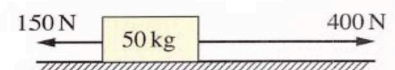
24. All the following are cases in which the object moves with acceleration, except

- a. when its velocity increases over time.
- b. when its velocity decreases over time.
- c. when it moves at a constant velocity.
- d. when its direction of motion changes.

25. Newton's second law is represented by the equation

- a. $F = \frac{m}{v}$
- b. $F = \frac{a}{m}$
- c. $F = ma$
- d. $a = \frac{F}{v}$

26. In the opposite figure:



1- The magnitude of the net force acting on the object equals

- a. 550N
- b. 400N
- c. 250N
- d. 150N

2- The acceleration of the object equals

- a. 1 m/s^2
- b. 2 m/s^2
- c. 4 m/s^2
- d. 5 m/s^2

*(3) Put (\checkmark) or (X) :

1. Hydrated substances turn into anhydrous substances by heating. ()
2. The chemical energy stored in lemon juice is converted into electrical energy, fulfilling the law of conservation of matter. ()
3. Breaking bonds between the atoms of the reactant molecules is accompanied by releasing heat energy to the surroundings. ()
4. In exothermic reactions, the final temperature is equal to the initial temperature. ()
5. Self-heating cans contain calcium hydroxide and water. ()
6. The reaction of iron with aluminum oxide is known as the thermite reaction. ()
7. In endothermic reactions, heat transfers from the system to the surroundings. ()
8. Endothermic reactions are accompanied by an increase in the temperature of the surroundings. ()
9. The common name of calcium carbonate is quicklime, while the common name of calcium hydroxide solution is limewater. ()
10. Propane gas represents 93% of the components of natural gas. ()
11. The mixture of propane and butane gases is odourless. ()
12. Nitrogen gas represents 21 % of the components of atmospheric air. ()
13. The combustion reaction is an endothermic reaction. ()
14. Fuel does not begin to ignite except after reaching a certain temperature known as the ignition point. ()
15. As the ignition point of the fuel decreases, its flammability increases. ()
16. Gas valves are closed during fires to isolate oxygen. ()
17. Water is characterized by its low specific heat. ()
18. The density of petroleum oil is greater than the density of water. ()
19. Oxidation and reduction processes are two separate processes that do not occur together at the same time in the chemical reaction. ()
20. Force is a scalar physical quantity, measured in newtons. ()
21. If two equal forces act on an object in opposite directions along the same line of action, the net force acting on the object is zero. ()

22. The greater the mass of the moving object, the greater its inertia, and the harder for it to be stopped. ()
23. When the velocity of an object changes over time, the object acquires acceleration in the same direction as the net force acting on it. ()
24. The greater the net force acting on the object, less its acceleration at constant mass. ()
25. The airbag works with the seat belt to increase the rate of change in velocity when the brakes are applied. ()
26. The action force and reaction force act without any time difference. ()
27. In elastic collisions, part of energy is lost as heat, sound or the object is deformed. ()
28. In drones, the downward push of air from the engines represents the reaction force. ()

*(4) Complete the following:

- Mass is a physical quantity, while force is a physical quantity.
- Force is fully defined by and
- The forces acting on an object are described as when their resultant of forces is zero, and as when their resultant of forces is not zero.
- The passengers of the bus are rushed when it stops suddenly according to Newton's law.
- When the velocity of an object increases or decreases, the object acquires whose direction is as the direction of the net force acting on the object.
- The factors affecting acceleration are and
- As the mass of the object increases, its acceleration at constant
- The safety precautions in cars include,
- Among the properties of the action force and reaction force is that they are in magnitude and in direction.
- The air hockey game represents a technological application of Newton's law, while the flyboard represents a life application of Newton's law.

✱(5) Correct the underline:

1	<u>Hydrogen</u> is a main element in the combustion process.	(.....)
2	The mixture of propane and <u>methane</u> is known as butagas.	(.....)
3	The calorific value of <u>natural</u> gas fuel is the highest.	(.....)
4	The <u>bunsen flame</u> is used in cutting and welding metals.	(.....)
5	The colour of the bunsen flame varies according to the amount of <u>nitrogen</u> mixed with the fuel.	(.....)
6	<u>Manganese dioxide</u> gas is released when all types of fossil fuel are burned.	(.....)
7	<u>Water</u> is used in extinguishing magnesium fires.	(.....)
8	<u>Hydrogen</u> gas is used in fire extinguishers to isolate fires from air.	(.....)
9	In the reaction: $H_2 + CuO \xrightarrow{\Delta} Cu + H_2O$, <u>hydrogen</u> acts as the oxidizing agent.	(.....)
10	The scientist <u>Aristotle</u> studied the velocity of sound in air.	(.....)
11	The tendency of an object to maintain its state of motion is called <u>uniform speed</u> .	(.....)
12	When a stationary bus moves forward suddenly, its passengers are rushed <u>to the right</u> .	(.....)
13	If the net force acting on a stationary object equals zero, the object <u>moves with acceleration</u> .	(.....)
14	The backward movement of the cannon when the shell is propelled forward represents application of <u>Newton's first law</u> .	(.....)
15	The action force and reaction force always act on <u>one object</u> .	(.....)

***(6) Give reasons for:**

1. The dissolution process is accompanied by a thermal change.

.....
.....

2. The dissolution of anhydrous lithium chloride salt in water is exothermic.

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3. Instant cold compresses are used to reduce the severity of swelling.

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4. Instant hot compresses are used to relieve pain associated with muscle strain (fatigue).

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5. The reactions of acids with alkalis are exothermic.

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6. When barium hydroxide powder is added to ammonium chloride powder, the temperature of the surroundings decreases.

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7. Ethyl alcohol is considered a renewable energy resource.

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8. The use of biofuel is preferred over fossil fuel.

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.....

9. The oxyacetylene flame is used in cutting and welding metals.

.....
.....

10. Carbon dioxide gas is used in extinguishing fires.

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.....

11. Water is not used in extinguishing of petroleum oil fires.

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12. Mass is a scalar physical quantity, while acceleration is a vector physical quantity.

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13. Rushing the bus passenger forward when the bus stops suddenly.

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14. Rushing the passenger of the stationary bus backward when it moves suddenly.

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***(7) What happens when:**

1. Rubbing your hands using laundry powder (washing powder) and water
«In terms of: thermal change».
.....
.....
2. Increasing the mass of sodium hydroxide dissolved in water
«In terms of: thermal change».
.....
.....
3. Doubling the mass of solute while keeping the volume of solvent constant
«In terms of: Temperature».
.....
.....
4. Pressing on instant cold compresses.
.....
.....
5. Pressing the button found in the bottom of the self-heating can.
.....
.....
6. Complete combustion of acetylene gas in the presence of excess oxygen gas.
.....
.....
7. Drops of glycerin are added to potassium permanganate powder.
.....
.....
8. If two forces equal in magnitude and opposite in direction act on the same line of action on a stationary object.
.....
.....
9. If the net force acting on a stationary object does not equal zero.
.....
.....
- 10.If the net force acting on a moving object at constant velocity is zero.
.....
.....
- 11.Reducing the net force acting on the same object to half (Regarding the acceleration).
.....
.....

*** (8) Mention the importance of the following:**

1. Instant cold compresses

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2. Instant hot compresses

.....

3. The thermite reaction

.....

4. Fuel of the future

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5. Natural gas and butagas

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6. Bunsen burner

.....

7. Oxyacetylene flame

.....

8. Fire extinguishers

.....

9. The seat belt

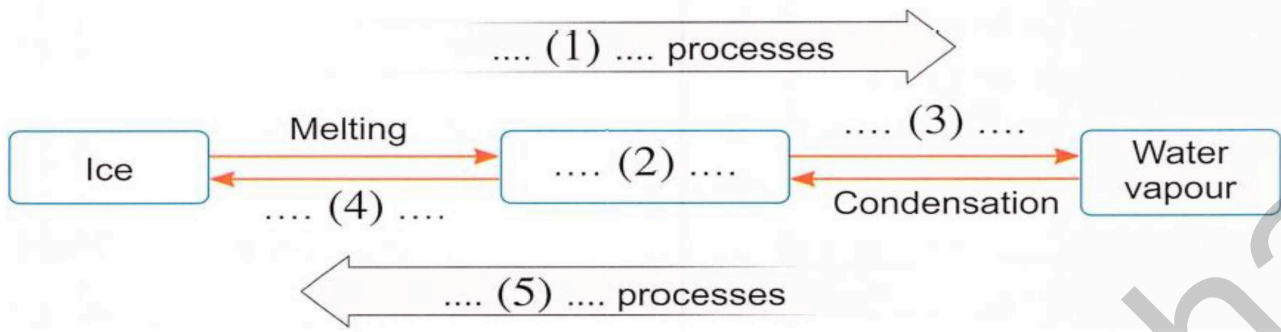
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10. The airbag

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***(9) Problems:**

1. Complete the following diagrams:



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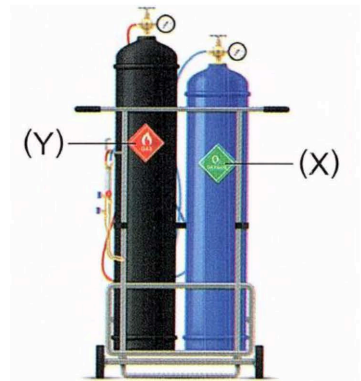
2. When dissolving blue anhydrous cobalt chloride in water at a temperature of 17°C, the temperature of the solution became 21° C:

- (1) Determine the type of this dissolution, with explanation.
- (2) Write the name and formula of the salt produced from the dissolution.
- (3) What happens when the salt produced from the dissolution is heated?4

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3. The figure shows a cylinder (X) containing a compressed gas that helps burning, and a cylinder (Y) containing a compressed flammable gas. Their mixture can produce a flame used in welding metals :

- (1) Name the gases in cylinders (X) and (Y).
- (2) What is the name of the flame produced? What is its temperature?

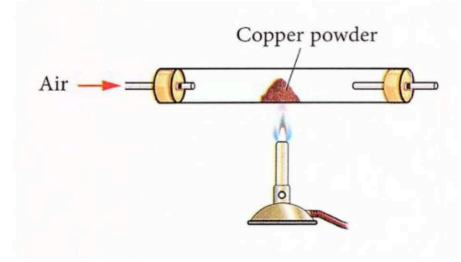


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4. In the opposite figure, a stream of air is passed over red-hot copper powder:

What is the change that occurs to the colour of copper?

Explain.



.....

.....

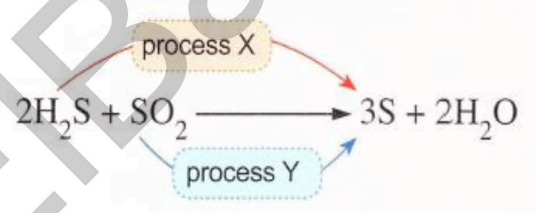
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5. The opposite equation represents a redox reaction:

(1) Complete:

1- The process (X) represents process.

2- The process (Y) represents process.



.....

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5. Calculate the acceleration with which an object of mass 50 kg moves when acted upon by a net force of 200 N

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.....

6. Calculate the required force to move a car of mass 500 kg with an acceleration of 2 N/kg

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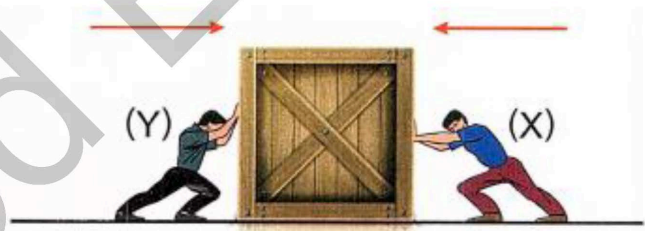
7. From the following two figures:



Which of the two cases represents:

- (1) Balanced forces ?
- (2) Unbalanced forces?

8. Calculate the net force in each case if
 the force of person (X) is 200 N and
 the force of person (Y) is 300 N



Model Answer

* (1) Write the scientific term:

- | | | | |
|--------------------------------------|----------------------------|----------------------------------|-----------------------------------|
| 1. The Law of Conservation of Energy | 6. Calorific value | 13. Reducing agent | 21. Acceleration |
| 2. Exothermic reactions | 7. Combustion | 14. Oxidizing agent | 22. Newton's Second Law of Motion |
| 3. Thermite reaction | 8. Incomplete combustion | 15. Net force | 23. Newton's Third Law of Motion |
| 4. Endothermic reactions | 9. Ignition point | 16. Newton | 24. Elastic collision |
| 5. Fuel | 10. Spontaneous combustion | 17. Newton's First Law of Motion | 25. Inelastic collision |
| | 11. Oxidation | 18. Stopping time | |
| | 12. Reduction | 19. Stopping distance | |
| | | 20. Acceleration | |

* (2) Choose the right answer:

- | | | | | | |
|------|-------|-------|-------|-----------------|-------|
| 1. B | 7. B | 13. D | 19. A | 25. C | 31. B |
| 2. D | 8. C | 14. A | 20. D | 26. (1.c – 2.d) | |
| 3. D | 9. B | 15. D | 21. A | 27. A | |
| 4. D | 10. C | 16. C | 22. A | 28. B | |
| 5. A | 11. B | 17. D | 23. A | 29. A | |
| 6. A | 12. A | 18. C | 24. C | 30. D | |

* (3) Put (✓) or (X) :

- | | | | | | |
|--------|---------|---------|---------|---------|---------|
| 1. (✓) | 6. (X) | 11. (✓) | 16. (X) | 21. (✓) | 26. (✓) |
| 2. (X) | 7. (X) | 12. (X) | 17. (X) | 22. (✓) | 27. (X) |
| 3. (X) | 8. (X) | 13. (X) | 18. (X) | 23. (✓) | 28. (X) |
| 4. (X) | 9. (X) | 14. (✓) | 19. (X) | 24. (X) | |
| 5. (X) | 10. (X) | 15. (✓) | 20. (X) | 25. (X) | |

* (4) Complete the following:

- | | | |
|-----------------------------|-------------------------|---------------------|
| 1. scalar / vector | 5. acceleration / same | 9. equal / opposite |
| 2. magnitude / direction | 6. net force / mass | 10. first / third |
| 3. balanced / unbalanced | 7. decreases | |
| 4. forward / Newton's first | 8. seat belts / airbags | |

* (5) Correct the underline:

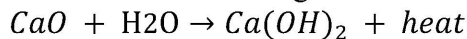
- | | | |
|------------------------|-----------------------|---------------------------|
| 1. Oxygen | 6. Carbon dioxide | 11. Inertia |
| 2. Butane | 7. Sand | 12. Backward |
| 3. Hydrogen | 8. Carbon dioxide | 13. remains stationary |
| 4. oxy-acetylene flame | 9. copper oxide (CuO) | 14. Newton's third law |
| 5. oxygen | 10. Newton | 15. two different objects |

* (6) Give reasons for:

- Because it is accompanied by a loss or absorption of thermal energy to or from the surroundings.
- Because it is accompanied by an increase in the temperature of the solution.
- Because they work by narrowing the blood vessels, which reduces blood flow to the injured area and thus reducing the swelling.
- Because they work by widening the blood vessels, which increases blood flow to the stressed areas, causing relaxing the contracting muscles and relieving pain.
- Because the amount of energy released during the formation of new bonds in the product molecules is greater than the amount of energy absorbed during the breakage of the bonds in the reactant molecules.
- Because it is an endothermic reaction accompanied by the absorption of thermal energy from the surroundings leading to decreasing the temperature.
- Because it is prepared from plants rich in starch such as corn plant.
- Because biofuel is a renewable resource, while fossil fuel is a non-renewable resource.
- Because the oxyacetylene flame reaches a temperature of 3000°C which is sufficient for that.
- Because it is a gas that does not burn and does not support burning.
- Because petroleum oil floats on the surface of water due to its lower density compared to that of water, which leads to the spread of fires instead of extinguishing them.
- Because to define mass, only its magnitude needs to be specified, while to define acceleration, both its magnitude and direction must be specified.
- Because the inertia of the passenger causes him to resist the sudden change
- Because the inertia of the passenger causes him to resist the sudden movement of the bus.

***(7) What happens when:**

- Your hands feel warm.
- The amount of change in temperature increases.
- The temperature usually changes by a constant amount.
- The thin bag ruptures, causing the solute to mix with water and an endothermic dissolution occurs.
- The thin membrane which is between calcium oxide and water ruptures, so calcium oxide reacts with water forming calcium hydroxide solution with releasing heat.



- The oxyacetylene flame is formed, which reaches a temperature of 3000°C
- A spontaneous exothermic reaction occurs, leading to the emission of smoke with the formation of a purple-colored flame.
- The object remains stationary.
- The object moves in the same direction as the net force affected.
- The object continues moving at the same constant velocity.
- The acceleration is reduced to half.

***(8) Mention the importance of the following:**

- to reduce the severity of swelling.
- to relieve pain associated with muscles fatigue.
- This reaction is used in welding the railway tracks.
- It is used as fuel for cars and trucks powered by fuel cells (hydrogen fuel cells).
- They are the main fuels used in households.
- It is used as a source of heat in laboratories.
- It is used for cutting and welding metals, such as steel (iron) and copper.
- They are used to isolate fires from air (oxygen).
- Reduces the rushing forward of the driver towards the steering wheel
- It reduces the impact of the collision on the driver.

***(9) Problems:**

1	<ol style="list-style-type: none"> Heating Water Evaporation Freezing Cooling 	2	<p>(1) Exothermic dissolution/ Because the final temperature is higher than the initial temperature.</p> <p>(2) Hydrated cobalt chloride salt/ $CoCl_2 \cdot 6H_2O$</p> <p>(3) Hydrated cobalt chloride (Pink) turns into anhydrous cobalt chloride (blue).</p>
3	<p>(X): Oxygen gas.</p> <p>(Y): Acetylene gas.</p> <p>(2) Oxyacetylene flame / Its temperature reaches 3000°C</p>	4	It turns from reddish-brown to black/ Because copper combines with oxygen of atmospheric air, forming black copper oxide compound.
5	$a = \frac{f}{m} = \frac{200}{50} = 4 \text{ m/s}^2$	6	$f = m \times a = 500 \times 2 = 1000 \text{ N}$
7	Balanced forces – figure (2) Unbalanced forces – figure (1)	8	(to the right) $F = 300 - 200 = 100 \text{ N}$

تطبيق



مذكرات جاهزة للطباعة

لتحميل الملفات التعليمية مجاناً للمعلم والطالب

مذكرات وملازم / مراجعات وملخصات / امتحانات / كتب الوزارة /
أدلة المعلم / دفاتر التحضير / سجلات مدرسية / أوراق تأسيس

امسح الكود بموبايلك علشان تقدر تثبت التطبيق

وتقدر ف أي وقت تحمّل ال نفسك فيه ببلاش

هيغنيك عن البحث والجروبات والقنوات الكثيرة

