



ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION

Second Term Examination - 2018



Sub :Physical Science

Class: 8

FM: 90

Duration:2hrs30 Min.

Date: 02.08.2018

GROUP - A

1. MCQ

[1x5=5]

1.1 When a ray of light passes from a denser to a rarer medium, it bends

- a) Away from the normal
- b) Towards the normal
- c) Anywhere
- d) At infinity

1.2 In a simple microscope, the object is placed

- a) Between F and 2F
- b) Between F and O
- c) At F
- d) Between 2F and O

1.3 Ice is formed by the process of

- a) Condensation
- b) Solidification
- c) Sublimation
- d) evaporation

1.4 The geometrical shape that covers the minimum area for a given volume is

- a) Cuboidal
- b) Cylindrical
- c) Spherical
- d) conical

1.5 Which of the following conditions are required for the formation of diamond:

- a) Very high temperature and pressure
- b) Very high temperature, but a very low pressure
- c) Very low temperature, but a very high pressure
- d) Very low temperature and pressure

2. Name the following:

[1x5=5]

2.1 The colour of light for which the angle of deviation is the least.

2.2 The instrument used to see very distinct objects on the ground.

2.3 The amount of heat that changes the state of a unit mass of a substance without causing any change in temperature.

2.4 The force exerted between the molecules of same substance

2.5 The force exerted between the molecules of different substance

3. State true or false:

[1x5=5]

3.1 Water is a denser medium with respect to air, but it is a rarer medium with respect to glass.

3.2 A convex lens is used in a camera.

3.3 During the change of state, there is no change in temperature.

3.4 An atom has all the properties of matter.

3.5 A component of water gas is used in the manufacture of ammonia.

SECTION - B

(2x5=10)

4. Very short answer type question

1. What is activated charcoal ?
2. Define adsorption and give an example ?
3. Define element and give one example ?
4. What is thermal capacity ? Give its S.I. unit.
5. Why perspiration in summer keeps the body cool ? Define 1 calorie.

(3x5=15)

5. Short answer type question. (any five)

1. High specific heat of water helps in protecting crops- explain.
2. Find the amount of heat in joules that will be required to raise the temperature of 100 g of copper by 50°C . Given the specific heat capacity of copper is $0.09 \text{ cal/g}^{\circ}\text{C}$.
3. Give reason- steam causes more severe burns than boiling water.
4. What are the 3 factors on which intermolecular force of attraction depends ?
5. How do doctors use measurement of surface tension to detect jaundice ? Define latent heat.
6. A liquid forms droplets- why ?
7. Write 3 properties of molecular arrangement in liquids.

SECTION - C

6. Long answer type question : (any 8)

(5X8=40)

1. List 5 features of kinetic theory of matter.
 2. State 5 differences between evaporation and vaporisation.
 3. What are the advantages of high specific heat capacity of water ? Explain with examples.
 4. Write any five applications of surface tension .
 5. Describe the preparations of charcoal, lampblack , coke, bone charcoal, sugar charcoal.
 6. Describe three distinguishing characteristics of crystalline and amorphous solids. Name two inorganic compounds containing carbon.
 7. State five uses of radioactive materials.
 8. Explain five safety measures that are taken in nuclear power plant.
 9. State the postulates of the Bohr Model.
 10. How water gas is prepared ? State two industrial importance of water gas.
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ST. LAWRENCE HIGH SCHOOL

SECOND TERM – 2018



Sub : PHYSICAL SCIENCE
Duration : 2 HR 30 MIN

Class : VIII
SOLUTION

F.M. : 80
Date : 02.08.18

GROUP - A

1. MCQ

[1x5=5]

- 1.1 a) Away from the normal
- 1.2 b) Between F and O
- 1.3 b) Solidification
- 1.4 c) Spherical
- 1.5 a) Very high temperature and pressure

2. Name the following:

[1x5=5]

- | | |
|---------------------------|-----------------------|
| 2.1 Red | 2.4 Force of cohesion |
| 2.2 Terrestrial telescope | 2.5 Force of adhesion |
| 2.3 Specific latent heat | |

3. State true or false:

[1x5=5]

- | | | |
|----------|-----------|----------|
| 3.1 True | 3.3 True | 3.5 True |
| 3.2 True | 3.4 False | |

GROUP-B

- 4)1. Activated charcoal is that charcoal prepared by heating wood charcoal at 900 degree celcius in limited supply of air.
 2. Adsorption- the phenomenon in which thin layer of a solid liquid or gas is formed on surface of a solid or liquid.e.g. thin layer of oil over surface of water.
 3. Simplest form of matter that cannot be divided into two or more simplest form.e.g. hydrogen.
 4. The amount of heat required to raise temperature of a body by 1 degree celcius. S.I unit J/K.
 5. When sweat evaporates it draws latent heat from the body thereby cooling it.
- 1 calorie – amount of heat required to raise temperature of 1 g of water by 1 degree celcius.
- 5) 1. Specific heat capacity of water is high and its temperature does not decrease much on cooler nights.so water doesnot allow the surrounding area 's temperature to decreases.
 2. Mass =100 g,temp.= 50 °C ,
 $Q = mst = 100 \times 0.09 \times 50 = 450 \text{ cal.}$
 3. 1 g of steam realeases 2260 J of heat when it condenses into water at 100°C thus giving more painful burns.
 4. Intermolecular space-more intrmolecular space leads to decrease in intermolecular force.

Nature of molecules – cohesion force is more in solid, lesser in liquid and least in gases.

Temperature- K.E. of molecules increases with temperature.

5. Surface tension of the urine of the patient suffering from jaundice is 55 dynes/cm whereas that of a normal person is 66 dynes/cm. By this report, a doctor detects jaundice.
Latent heat is the amount of heat released or absorbed by a substance to change its state of matter without any change in its temperature.
6. During droplet formation, the droplet will try to reduce the number of surface molecules so that surface tension causes the molecules to have the maximum energy. Area will be minimised as a sphere has minimum surface area. So, droplets are spherical.
7. Molecules are less tightly packed; intermolecular space is large; intermolecular force of attraction is weak.

GROUP- C

1. All matter is made up of small particles; molecules are alike in all respects; molecules are in continuous motion; molecules have intermolecular space; molecules are attracted towards each other by intermolecular force of attraction.
2. Evaporation- it is a slow process. It occurs at the surface of liquid. No fixed temperature required. It produces a cooling effect. No agitation.
Vaporisation – it is a rapid process. It takes place throughout the liquid. It occurs at a fixed temperature. It does not produce a cooling effect. Whole mass is agitated.

3. Advantages of high specific heat are :

- a) Land and sea breeze.
- b) Water as a coolant.
- c) Crop protection
- d) To prevent freezing of drinks in cold countries.
- e) Fermentation

4. Five applications of surface tension:

- a) washing of clothes with hot water.
- b) soap and detergent
- c) test in jaundice.
- d) walking of spiders.
- e) floating of a needle.

- 5.

- a) Charcoal prepared by destructive distillation.
- b) Lampblack- when oil and wax burn, soot or lampblack is prepared.
- c) Bone charcoal- animal bones are boiled, and then destructive distillation is done in a retort. The solid product is washed thoroughly with HCl. Residual substance is bone charcoal.
- d) Coke- coal heated strongly in absence of air.
- e) Sugar charcoal- it is prepared by destructive distillation of cane sugar with sulphuric acid.

- 6.

- a) Crystalline- have definite geometrical form. Amorphous- have no definite geometrical form.
- b) Crystalline- Particles are arranged in an orderly manner. Amorphous- particles are not arranged in an orderly manner.
- c) Crystalline- Sharp edges when cut with knife or broken. Amorphous- Curved edges when cut with knife or broken.
- d) Crystalline- Melts sharply at a definite temperature called its melting point. Amorphous- Do not melt sharply at a definite temperature rather they soften over a range of temperature when heated.

7. Uses of radioactive materials:

- a) Nuclear power: Controlled nuclear fission is used for generating electricity.
- b) Radioactive isotopes are used for tracer techniques.
- c) Comparing the ratio of carbon -12 and Carbon -14 in a living plant to that in a dead plant we can identify the age of dead plants and fossils and is called radiocarbon dating.
- d) Radioactive isotopes have been used in medicines too.

8. Five safety measures(any five):

- a) There should be no leakage in the plant. If a radioactive material leaks out it can cause great harm to the people around.
- b) The reactor must be surrounded by thick concrete so that radioactive rays do not come out.
- c) A fire should never break out in a nuclear plant.
- d) All operations must be remote-controlled.
- e) Great care must be taken in the disposal of nuclear wastes.
- f) The level of radiation in the body of any worker in a nuclear power plant must not rise above a prescribed maximum. So everybody working in a nuclear plant must undergo regular medical check ups.

9. Postulates of the Bohr Model:

- a) Electrons revolve round the nucleus only in certain permissible circular orbits, also called shells.
- b) Each orbit has a definite energy.
- c) The energy of an electron remains constant so long as it revolves in a given orbit.
- d) An electron absorbs energy while jumping from a low energy level to a high energy level.
- e) An electron gives out energy while jumping from a high energy level to a low energy level.

10. When steam is passed over red hot coke, a mixture of carbon monoxide and hydrogen is formed. This mixture is called water gas. $C + H_2O = CO_2 + H_2$

Industrial uses (Any two):

- a) It is used in the synthesis of organic compounds like methane, methyl alcohol and acetic acid.
- b) After removing carbon monoxide the hydrogen of water gas is used in the synthesis of ammonia.
- c) Both the components are combustible so it is used as industrial fuel.