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RYAN GROUP OF SCHOOLS
ACADEMIC YEAR 2022-23
CBSE, FIRST TERM EXAMINATION

STD : IX-B **MARKS : 80**

SUB : SCIENCE (SET-A) **TIME : 3 HRS.**

General Instructions :

(i) ***The question paper comprises of four sections – A, B, C and D. There are 36 questions in the question paper. All questions are compulsory.***

(ii) ***Section A – question no. 1 to 20 – all questions and parts thereof are of one-mark each. These questions contain multiple choice questions (MCQs), very short answer questions and assertion - reason type questions. Answers to these should be given in one word or one sentence.***

(iii) ***Section B - question no. 21 to 26 are short answer type questions, carrying 2 marks each. Answers to these questions should in the range of 30 to 50 words.***

(iv) ***Section C - question no. 27 to 33 are short answer type questions, carrying 3 marks each. Answers to these questions should in the range of 50 to 80 words.***

(v) ***Section D - question no. 34 to 36 are long answer type questions, carrying 5 marks each. Answers to these questions should be in the range of 80 to 120 words.***

(vi) ***There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.***

(vii) ***Wherever necessary, neat and properly labeled diagrams should be drawn.***

SECTION - A

Q.1 Seema visited a Natural Gas Compressing unit and found that the gas can be liquefied under specific conditions of temperature and pressure. While sharing her experience

with friends she got confused. Help her to identify the correct set of conditions.

(a) Low temperature, low pressure
(b) High temperature, low pressure
(c) Low temperature, high pressure
(d) High temperature, high pressure **(1)**

OR

The property of flow is unique to fluids. Which one of the following statements is correct?

(a) Only gases behave like fluids
(b) Gases and solids behave like fluids
(c) Gases and liquids behave like fluids
(d) Only liquids are fluids

Q.2 If we put camphor in an open container, its amount keeps on decreasing due to the phenomenon of

(a) Evaporation (b) Precipitation
(c) Condensation (d) Sublimation **(1)**

Q.3 On converting 25°C, 38°C and 66°C to Kevlin scale, the correct sequence of temperature will be

(a) 298 K, 311 K and 339 K
(b) 298 K, 300 K and 338 K
(c) 273 K, 278 K and 543 K
(d) 298 K, 310 K and 338 K **(1)**

Q.4 Which of the following are homogeneous in nature?

i) ice ii) wood
iii) soil iv) air **(1)**
(a) i&ii (b) ii & iv
(c) i&iv (d) iii&iv

Q.5 Identify the incorrect example of a true solution from the following: (1)

Milk, salt solution, copper sulphate in water, acetone in water

Q.6 Where are genes located? **(1)**

OR

What happens if ribosomes are removed from the cells?

Q.7 What is plasmolysis? **(1)**

Q.8 Amoeba is able to engulf its food due to the flexibility of the cell membrane. What is this process called as? **(1)**

OR

Generally a stain is used to study any material because

a) stain makes it look beautiful
b) It adds just colour to the material
c) cells are colourless
d) stains colour different parts, so to bring out contrast for better visibility

Q.9 What is the function of stomata? **(1)**

a) Gaseous exchange b) Transpiration
c) Conduction of water d) Both (a) and (b)

Q.10 a) Name the tissue fills the space inside the organ. **(1)**
b) Tissue that forms inner linning layer of mouth.

Q.11 Suppose a boy is enjoying a ride on a marry-go-round which is moving with a constant speed of 10 m/s. It implies that the boy is: **(1)**

(a) At rest
(b) Moving with no acceleration
(c) In accelerated motion
(d) Moving with uniform velocity

Q.12 A goalkeeper in a game of football pulls his hands backwards after holding the ball shot at the goal. This enables the goalkeeper to: **(1)**

(a) Exert large force on the ball
(b) Increases the force exerted by the ball on handss
(c) Increase the rate of change of momentum
(d) Decrease the rate of change of momentum

OR

The numerical ratio of displacement to distance for a moving object is:

(a) Always less than 1
(b) Equal to 1 or less than 1
(c) Always more than 1
(d) Equal to 1 or more than one

Q.13 When a balloon held between the hands is pressed, its shape changes. This happens because: (1)

(a) Balanced forces act on the balloon
(b) Unbalanced forces act on the balloon
(c) Frictional forces act on the balloon
(d) Gravitational force acts on the balloon

For question number 14,15,16 two statements are given- one labelled Assertion (A) and the other labelled Reason (R) . Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below:

i) Both A and R are true and R is correct explanation of the assertion.
ii) Both A and R are true but R is not the correct answer explanation of the assertion.
iii) A is true but R is false.
iv) A is false but R is true.

Q.14 **Assertion(A)** : A solution of table salt in a glass of water is homogeneous. (1)
Reason(R) : A solution having different composition throughout is homogeneous.

Q.15 **Assertion(A)** : Acell of meristematic tissue is very active. (1)
Reason(R) : Meristematic tissue is a dividing tissue.

Q.16 **Assertion (A)**: If net external force acting on an object is zero, its acceleration is zero. (1)
Reason (R): The rate of change of momentum determines the force.

Question No 17 - 20 contain five sub-parts each. You are expected to answer any four sub- parts in these questions.

Q.17 Distance is the length of the actual path covered by an object, irrespective of its direction of motion. Displacement is the shortest distance between the initial and final positions of an object in a given direction.

Distance is a scalar quantity. Displacement is a vector quantity. Distance covered can never be negative. It is always positive or zero. Displacement may be positive, negative or zero.

(i) _____ is the actual path covered by an object.
(a) Speed (b) Motion
(c) Velocity (d) Distance

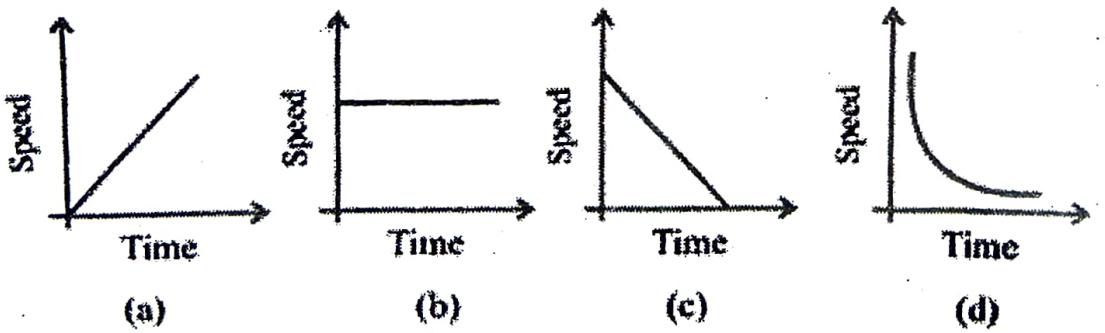
(ii) _____ is the shortest distance between the initial and final positions of an object.
(a) Displacement (b) Acceleration
(c) Distance (d) Motion

(iii) Which of the following is a scalar quantity?
(a) Displacement (b) Distance
(c) Velocity (d) Acceleration

(iv) Distance covered _____
(a) can never be negative.
(b) can never be positive.
(c) can never be zero.
(d) can be positive or negative.

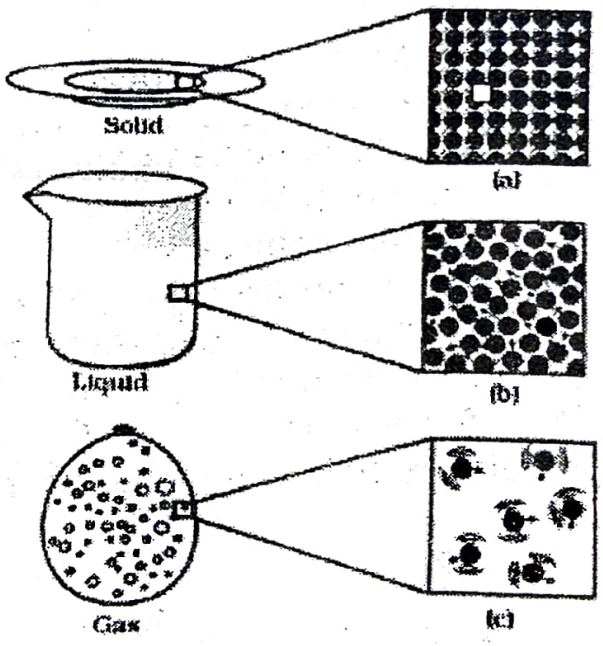
(v) Which of the following is vector quantity?
(a) Displacement (b) Velocity
(c) Acceleration (d) All of these

Q.18 See the picture below and answer the following:(1x4=4)



a) What type of motion is depicting by the graph 'a'?
b) Identify the graph depicting the uniform retarded motion.
c) Write one point difference showing in the graph 'c' and 'd'.
d) Write the SI unit of retardation.
e) Differentiate between speed and velocity. (one point)

Q.19 Gases are highly compressible as compared to solids and liquids. The liquefied petroleum gas (LPG) cylinder that we get in our home for cooking or the oxygen supplied to hospitals in cylinders is compressed gas. Compressed natural gas (CNG) is used as fuel these days in vehicles. The liquid takes up the shape of the container in which they are kept. Liquids flow and change shape, so they are not rigid but can be called fluid. Solids and liquids can diffuse into liquids. The aquatic animals can breathe underwater. The rate of diffusion of liquids is greater than solid. **(1x 4=4)**



a. Why Compressed natural gas (CNG) is used as fuel these days in vehicles?

1. due to its high compressibility
2. large volumes of a gas can be compressed into a small cylinder
3. transported easily
4. all of these

b. liquids have no fixed _____ but have a fixed_____.

1. shape, volume
2. volume, shape
3. shape, size
4. size, shape

c. The aquatic animals can breathe underwater due to
   1. the presence of dissolved carbon dioxide in water
   2. the presence of dissolved oxygen in the water
   3. the presence of dissolved Nitrogen in the water
   4. all of these

d. The rate of diffusion of liquids is greater than solid due to
   1. liquid particles move freely
   2. liquid have greater space between each other
   3. both (a) and (b)
   4. none of these

e. The property of flow is unique to fluids. Which one of the following statements is correct?
   1. Only gases behave like fluids
   2. Gases and solids behave like fluids
   3. Gases and liquids behave like fluids
   4. Only liquids are fluids

Q.20 Each kind of cell organelle performs a special function, such as making new material in the cell, clearing up the waste material from the cell and so on.A cell is able to live and perform all its functions because of these organelles. These organelles together constitute the basic unit called the cell. It is interesting that all cells are found to have the same organelles, no matter what their function is or what organism they are found in. **(1x4=4)**

1. ~~The membrane around~~ the nuclear region of eukaryotes are also known as
   a) nucleus b) nucleolus
   c) nucleic acid d) nucleoid
2. Kitchen of the cell is
   a) mitochondria b) endoplasmic reticulum
   c) chloroplast d) Golgi apparatus
3. Lysosomes arises from
   a) endoplasmic reticulum
   b) Golgi apparatus

c) nucleus
d) mitochondria

4. Living cells were discovered by
   a) Robert Hooke b) Purkinje
   c) Leeuwenhoek d) Robert Brown
5. Which of the following is not the function of vacuole
   a) Storage b) Provide turgidity
   c) waste excretion d) Locomotion

SECTION - B

Q.21 Give reasons: (2)
a) Why are smooth muscles named as unstriated?
b) Matrix of bone is made up of calcium.

Differenciate between bone and cartilage

OR

~~How does the cork act as a protective tissue?~~

Q.22 Name four regions in which parenchyma tissue is present in plant body.

Q.23 State one difference between pure and impure substances. (2)

OR (2)

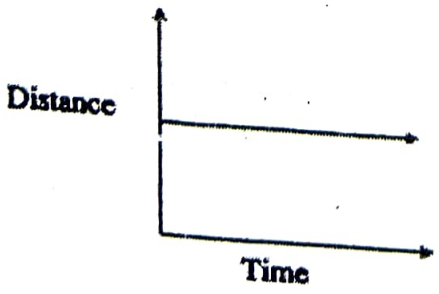
Calculate the amount of common salt is required to prepare 450g of 5% solution of common salt by mass.

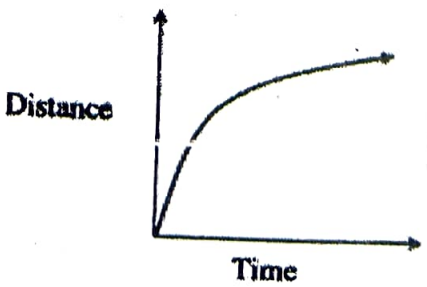
Q.24 Why does a desert cooler cool better on a hot dry day? (2)

Q.25 A moving train is brought to rest within 20 seconds by applying breaks. Find the initial velocity,if the retardation due to brakes is $2m/s^2$.

Q.26 a) Change the velocity 6Km/hr to m/s. (2)

(2)





b) Which of the above graph represents object at rest?

SECTION - C

Q.27 A particle is moving with a uniform velocity. Is it necessary that it is moving along a straight line? Justify. **(3)**

OR

A bullet moving with velocity of 10m/s is brought to rest after penetrating the wooden plank of 4 cm thickness. Calculate the acceleration of the bullet.

Q.28 A bus is moving at a speed of 72 km/h. On applying brakes it comes to rest in 5 second. Find the acceleration and distance covered by the bus. **(3)**

Q.29 Write the two points difference between cell wall and plasma membrane on the basis of structure and function. **(3)**

Q.30 a) Classify the following processes as osmosis or diffusion:

i) Swelling of raisins on keeping in water

ii) Spreading of viruses on sneezing

b) Differentiate between hypotonic and hypertonic solutions. **(3)**

Q.31 Classify the following as physical and chemical changes. Give reason for your answer. **(3)**

(a) Burning of Candle

(b) Melting of Ice

(c) Burning of petrol in an engine

(d) Change of colour of iron bar on strong heating

(e) Churning of milk to get butter

Q.32 How does the cork act as a protective tissue? **(3)**

Q.33 What are the characteristics of the particles of matter? Write any 3 points. **(3)**

SECTION - D

Q.34 a) Differentiate among true solution, colloids and suspension on the basis of transparency and the nature of the mixtures. **(5)**

b) Identify the elements from the following substances: Sulphur, brine, hydrochloric acid, water, neon, paper, sugar

Q.35 a) As plant grow older, the outer protective tissue of stem changes into cork. How does this happen? **(5)**

(b) State one important function of-

(i) Nervous tissue

(ii) Epithelial tissue

OR

(a) Draw neat and labelled diagrams of simple permanent tissues.

(b) Differentiate between xylem and phloem tissues.

Q.36 (a) State the reason why a bullet of small mass-fired from a gun kills a person. **(5)**

(b) Which law shows that forces are always produced in pairs?

(c) Which law gives definition of force?

OR

Tow objects A&B, having masses 100kg and 75kg moving with velocities 40km/hr and 60km/hr respectively. Answer the following:

(a) Which will have greater inertia?

(b) Which will stop first if equal negative acceleration is applied on both.

(c) Which will travel greater distance in 10 minutes?

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