FIRST TERM EXAMINATION - 2024 2

SCIENCE   AA/26/450

Time : 3 Hrs.   **CLASS IX**   **M.M. 80**

General Instructions:

i) *This question paper consists of 39 questions in 5 Sections.*

ii) *All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.*

iii) *Section A consists of 20 questions carrying 1 mark each.*

iv) *Section B consists of 6 questions carrying 2 marks each.*

v) *Section C consists of 7 questions carrying 3 marks each.*

vi) *Section D consists of 3 Long questions carrying 5 marks each.*

vii) *Section E consists of Source Based/Case Based Assessment of 4 marks each with sub-parts*

SECTION – A

Q.1. Which of the following is not a factor of evaporation –

a) Wind   b) Surface area

c) Humidity   d) Density

Q.2. Which of the following are chemical changes ?

i) Cutting of trees   ii) Rusting of Iron

iii) Digestion of food   iv) Cutting of paper

a) (ii) and (iii)   b) (i), (iii) and (iv)

c) (i), (ii) and (iii)   d) (i), (ii) and (iv)

Q.3. Tincture of iodine has antiseptic properties. This solution is made by dissolving.

a) Iodine in potassium iodide   b) Iodine in vaseline

c) Iodine in water   d) Iodine in alcohol

Q.4. Identify the tissue responsible for the radial growth and subsequent increase in width of the stem.

a) Primary meristem   b) Apical meristem

c) Intercalary meristem   d) Lateral meristem

Q.5. Different parts of plants exhibit remarkable ability to flex without sustaining damage or breaking. Name the tissue that confer flexibility to plants.

a) Chlorenchyma
b) Parenchyma
c) Sclerenchyma
d) Collenchyma

Q.6. Which of the following quantities can be zero for a moving object ?

a) Average Velocity
b) Distance Travelled
c) Average Speed
d) Speed

Q.7. At a given place, the weight of an object is _____.

a) Directly proportional to the mass.
b) Inversely proportional to the square of the mass.
c) Directly proportional to the square of the mass.
d) Inversely proportional to the mass.

Q.8. A solid of density 800 kg/m³ floats in oil as shown. The oil floats on liquid of density 900 kg/m³ as shown. The density of oil in kg/m³ could be :—
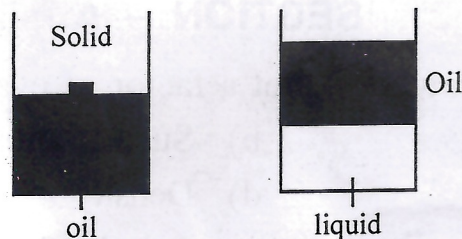
a) 850
b) 900
c) 950
d) 1050

Q.9. If the distance between two bodies is decreased to 4 times, then the gravitational force between the bodies –

a) Remains unchanged
b) Increases 4 times
c) Decreases 4 times
d) Becomes 16 times of initial value

Q.10 Which of the following quantities can be obtained from the slope of velocity – time graph ?

a) Distance
b) Displacement
c) Velocity
d) Acceleration

Q.11 One can observe the presence of uniformly thickened rigid walls containing lignin in :—

a) Sclerenchyma
b) Parenchyma
c) Chlorenchyma
d) Collenchyma

Q.12 Both fish and frog are eukaryotic organisms. The functions involving storage, modification and packaging of products in vesicles in the cells of these organisms are performed by :–
  a) ER
  b) SER
  c) Ribosomes
  d) Golgi bodies

Q.13 Which of the following process is responsible for producing gametes during reproduction in plants and animals ?
  a) Mitosis
  b) Meiosis
  c) Binary Fission
  d) Budding

Q.14 Two chemical species X and Y combine to form a product P which contains both X and Y. $X + Y \rightarrow P$ and Y cannot be broken down into simpler substances by simple chemical reactions. Which of the following concerning the species X, Y and P are correct ?
  i) P is a compound
  ii) X and Y are compounds
  iii) X and Y are elements
  iv) P has a fixed composition
  a) (i), (ii) and (iii)
  b) (i), (ii) and (iv)
  c) (ii), (iii) and (iv)
  d) (i), (iii) and (iv)

Q.15 Which of these remains constant or unchanged at melting point and boiling point ?
  a) Physical State of Matter
  b) Chemical Composition of Matter
  c) Temperature of Matter
  d) B and C Both

Q.16 On converting 12^0C, 33^0C and 78^0C to Kelvin scale, the correct sequence of temperature will be -
  a) 285K, 306K and 351K
  b) 306K, 285K and 351K
  c) 385K, 406K and 451K
  d) 285K, 306K and 350K

Question No. 17 to 20 are Assertion–Reasoning Based Questions:
These consists of two statements–Assertion(A) and Reason (R). Answer these questions selecting the appropriate option given below –
  a) Both A and R are true and R is the correct explanation of A
  b) Both A and R are true and R is not the correct explanation of A
  c) A is true but R is false
  d) A is false but R is true

Q.17 A - Gases can be liquefied easily

R - The gases do not have fixed volume

Q.18 A - Air is a mixture.

R - Its constituents do not retain their individual properties

Q.19 A - The cell wall is living and freely permeable to all substances.

R - Cell wall is rigid outer covering of plant cell.

Q.20 A - Uniform circular motion is an example of accelerated motion.

R - The magnitude of velocity is continuously changing in the case of uniform circular motion.

SECTION – B

Question 21 to 26 are Very Short Answer Type Questions:

Q.21 Alka was making tea in a kettle. Suddenly she felt intense heat from the puff of steam gushing out of the spout of the kettle. She wondered whether the temperature of the steam was higher than that of water boiling in the kettle. Comment.

Q.22 Why are lysosomes known as suicide bags ?

Q.23 What can you say about the motion of an object whose distance-time graph is ?

i) A Straight line, parallel to the time axis ?

ii) A straight line passing through the origin making an angle with the time axis ?

Q.24 If the moon attracts the earth, why does the earth not move towards the moon ?

Q.25 In a high jump athletic event, the athletes are made to fall either on a cushioned bed or on a sand bed. Why is it done?

Q.26 How would you confirm that a colourless liquid given to you is pure water?

or

How much water should be added to 15g of salt to obtain 15% salt solution.

SECTION – C

Question No. 27 to 33 are Short Answer Type Questions:

Q.27 Define solubility. How can you increase the solubility of a solution. (Two Ways)

Q.28.a) Compare a block of wood, water and air on the basis of the following–
    i) Compressibility   ii) Particle Motion   iii) Rigidity

  b) Account for the following :
    i) Gases exert pressure on the walls of the container.
    ii) Liquids can be called as fluids.

Q.29 Give reasons for the following :
  i) Bark of a tree is impervious to gases and water
  ii) In desert plants, epidermis has a thick waxy coating
  iii) It is difficult to pull out the husk of coconut

Q.30 Joseph jogs from one end A to the other end B of a straight 300m road in 2 minutes 30 seconds and then turns around and jogs 100m back to point C in another 1 minute. What are Joseph's average speeds and velocities in jogging (a) A to B (b) from A to C ?

or

A car moving at 36 km/h, accelerates and covers a distance of 24m. If the final velocity of the car is 54 km/h. Calculate, (a) the acceleration of a car and (b) the time for which the car was accelerating.

Q.31.a) From Newton's third law of motion, the apple also attracts the Earth. If the apple also attracts the Earth, why do we not see the Earth moving towards an apple ?

  b) Weight of an object on the surface of moon is 6N. Find the weight of the same object on the surface of earth.

  c) Why does a block of plastic released under water come up to the surface of water ?

Q.32 What will happen if :
  a) Plasma membrane ruptures
  b) Golgi Apparatus is removed from the cell ?
  c) Why the inner membrane of mitochondria deeply folded ?

Q.33 A car falls off a ledge and drops to the ground in 0.8 second.
  i) What is the speed on striking the ground ?
  ii) What is its average speed during 0.8 second ?
  iii) How high is the ledge from the ground ?

or

i) Name the property of bodies to resist a change in their velocity.

ii) What is relationship between force and acceleration ?

iii) Which physical quantity corresponds to the rate of change of momentum?

SECTION – D

Q.34 Account for the following :

a) When sugar crystals dissolve in water, the level of water does not rise appreciably.

b) Dogs generally hang out their tongue in summer.

c) A wooden table should be called a solid.

d) Sponge though compressible is a solid.

e) Ice at 0^0C appears colder to the mouth than water at 0^0C. Why ?

Q.35.i) If the cells of onion peel and red blood cells (RBCs) are kept in hypotonic solution, what will happen to each of them ?

ii) Observe the diagram given below.

a) Which type of cell division is shown in the given diagram ?

b) What is the characteristic feature of given cell division ?
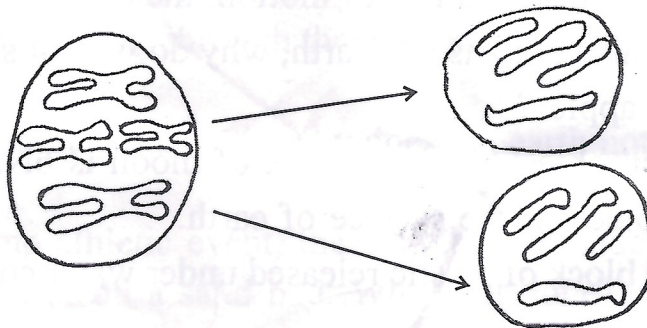
Q.36.a) An egg sinks in freshwater but floats in a strong solution of salt

b) State Archimedes principle

c) Give any two important applications of Archimedes principle.

d) What do you mean by relative density of a substance ? What is its unit?

e) A sharp knife is more effective than a blunt knife. Why ?

or

i) Define buoyant force.

ii) Why is it easy to walk on sand with flat shoes, than with high heel shoes?

iii) Mention any two factors affecting the buoyant force.

iv) State the relationship between the buoyant force on an object and weight of the liquid displaced by it.

v) Buoyant force exerted by the fluid is equal to the weight of the body?

SECTION – E

Question No. 37 to 39 are Case Based/Source Based Questions with 2 to 3 short subparts. Internal choice is provided in one of these subparts.

Q.37 Have you heard of solid carbon dioxide (CO_2) ? It is stored under high pressure. Solid CO_2 gets converted directly into gaseous state on decrease of pressure to 1 atmosphere without coming into liquid state. This is the reason that solid carbon dioxide is also known as dry ice.

a) What is the term used for solids transforming to gas directly without entering into liquid state ?

b) What is the opposite term used for the term mentioned in a) part ?

c) Why CO_2 is known as dry ice ?

d) Under what conditions, the gas can be transformed to solids ?

Q.38 Sam started driving his car, he increased the speed till 4 seconds and then he kept driving at a constant speed for 6 seconds. Then he decreased his speed for next 6 seconds. After reaching the starting point he drew the speed-time graph for 16 second as shown below.
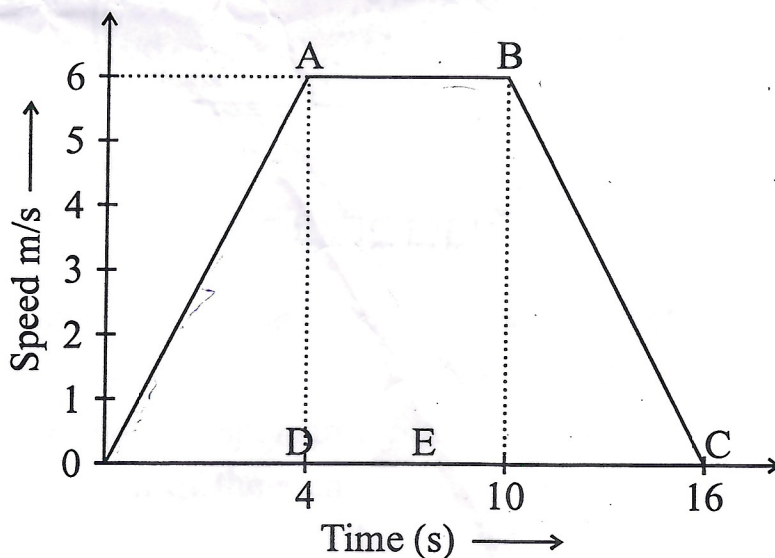
a) What type of motion is represented by part OA ?

(7)

b) What type of motion is represented by part BC ?

c) Calculate the acceleration of the car

d) Calculate the retardation of the car.

or

|d| Difference between acceleration and retardation. .

Q.39 Each cell has a membrane around it that keeps its own content separate from the external environment. Many complex cells carry out several chemical activities to support their complex structure and function. These activities are carried out in different membrane bound organelles and this feature distinguish them from prokaryotic cells. Prokaryotes lack defined nuclear membrane as well as many membrane bound organelles.

i) Which macromolecule is synthesized in ribosomes ?

ii) What does the prokaryotic nuclear region called ?

iii) In eukaryotes, which organelles contain DNA ?

iv) Identify A, B and C in the given diagram.

or

|iv| Expand DNA

□□□□□