BUDHA DAL PUBLIC SCHOOL PATIALA

First Term Examination (8 September 2023)

CLASS IX

PAPER- SCIENCE (SET-B)

Time:3 hr. 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 objective type questions carrying 1 mark each.*
iv) *Section B consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.*
v) *Section C consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should be in the range of 50 to 80 words.*
vi) *Section D consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.*
vii) *Section E consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.*

Section – A

Q1. SI unit of retardation is _____. (1)

Q2. An unbalanced force is necessary for an object to be (1)

a) at rest
b) in motion with a constant velocity
c) accelerated
d) all of the preceding

Q3. Two particles are placed at some distance. If mass of each of the two particles is doubled, keeping the distance between them unchanged, the value of gravitational force between them will become/ remain. (1)

a) ¼ times b) 4 times c) ½ times d) unchanged

Q4. The value of 'g' is _____ at the poles of the earth. (maximum/minimum) (1)

Q5. Physical state of water at O^0C is (1)

a) solid b) liquid c) gas d) none of these

Q6. The correct order which describes the true solution, colloidal and suspension in the order of stability is (1)

a) Suspension < colloidal < true solution
b) Colloidal solution < true solution < suspension
c) True solution < colloidal < suspension
d) Colloidal solution < Suspension < True solution

Q7. A gas can be liquefied by (1)

a) lowering the temperature
b) increasing the temperature

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c) increasing the pressure
d) both by increasing the pressure and lowering the temperature

Q8. Example of an element among the following is (1)
a) Water b) Ammonia c) Salt d) Iron

Q9. Two liquids A and B have boiling points 350 K and 375 K. Which has higher intermolecular forces at attraction? (1)

Q10. What is dispersed phase and dispersion medium in cloud? (1)

Q11. Cork is impervious to water because it contains (1)
a) lignin b) suberin c) pectin d) fibre

Q12. The dead element present in the phloem is (1)
a) companion cell b) phloem fibre c) phloem parenchyma d) sieve tube

Q13. If the tip of sugarcane plant is removed from the field, even then it keeps on growing in the length. It is due to presence of (1)
a) cambium b) apical meristem c) lateral meristem d) intercalary meristem

Q14. Which type of plastids provide various colour to flowers to attract insects for pollination (1)
a) chloroplasts b) leucoplasts d) chromoplasts d) none of the above

Q15. Among the following which are present in plant cell and not in animal cells? (1)
a) mitochondria and plastids
b) mitochondria and cell wall
c) cell wall and lysosomes
d) cell wall and plastids

Q16. In a cell, transportation of materials occur by (1)
a) golgi complex
b) lysosomes
c) endoplasmic reticulum
d) mitochondria

For the following questions, two statements are given – one labeled Assertion (A) and the other labeled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

a) Both A and R are true and R is the correct explanation of the assertion.
b) Both A and R are true but Reason R is not a correct explanation of Assertion.
c) A is true but R is false.
d) A is false but R is true.

Q17. **Assertion :** The velocity of a body is a scalar quantity. (1)
Reason: The vector quantity has both magnitude and direction.

Q18. **Assertion :** When distance between two bodies is doubled and also mass of each body is doubled, gravitational force between them becomes half. (1)

Reason : According to Newton's law of gravitation, force is directly proportional to masses of the bodies and inversely proportional to square of the distance between them.

OR

Assertion : The direction of acceleration due to gravity is always towards the Earth.

Reason : The value of 'g' is 9.8 m/s^2

Q19. **Assertion :** Pure substances have fixed melting points. (1)

Reason : The properties of a compound are similar to those of its components.

Q20. **Assertion :** Plasma membrane is selectively permeable. (1)
Reason : Plasma membrane allows all molecules to pass through it easily.

OR

Assertion : Aerenchyma occurs in aquatic plants.

Reason : It is specialized to perform photosynthesis in weak light.

Section – B

Q21. Write two points of difference between distance and displacement. (2)

Q22. A stone is dropped from the top of a 40m high tower. Calculate its speed after 2s. (2)
Also find the speed with which the stone strikes the ground.

Q23. Enlist four differences of mixtures and compounds. (2)

Q24. Convert the following temperature from Celsius scale to Kelvin scale (2)
i) 102^0 C ii) -80^0 C

OR

Give one word/ term for the following descriptions
(i) Change from vapour to liquid
(ii) Conversion of ammonium chloride from solid to gas

Q25. Differentiate between Mitosis and Meiosis. (Give 2 points) (2)

Q26. Which organelle is known as 'Power house of the cell'? Why? (2)

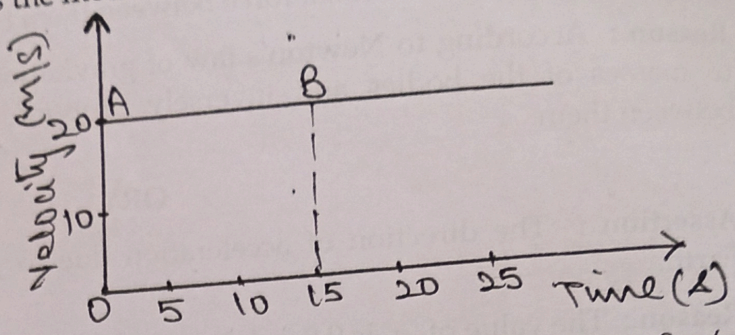
OR

Which structure protects the plant body against the invasion of parasites? Give two reasons.

Section - C

Q27. The velocity – time graph shows the motion of a cyclist. Find (3)

a) its acceleration
b) its velocity and
c) the distance covered by the cyclist in 15 seconds.



Q28. An object of mass 100kg is accelerated uniformly from a velocity of 5m/s to 8m/s in 6s. Calculate the initial and final momentum of the object. Also, find the magnitude of the force exerted on the object. (3)

Q29. Show that the weight of an object on the moon is $1/6^{th}$ of its weight on the earth. (3)

Q30. Water is considered as compound not mixture. Justify your answer by giving four reasons. (3)
Define aerosol. Give one example.

Q31. a) Define latent heat? What are its types (3)
b) Define Homogeneous and Heterogeneous mixture with example.

Q32. a) Give reason for – (3)
Meristematic cells have a prominent nucleus and dense cytoplasm but they lack vacuole.
b) Draw well labelled diagram to show location of meristematic tissues in plant body.

Q33. a) Why does the plant cell placed in a hypotonic solution, not burst? (3)
b) What happens when a fully turgid plant cell in a hypertonic solution?
c) Define the phenomenon occurring in part (b)

Section - D

Q34. **Give reasons for the following:** (5)
a) It is always advised to tie the luggage kept at the roof of the car.
b) Boat moves back-wards when passengers alight from it.
c) It is easy to move a wooden block than a steel block of the same shape and same volume.
d) Leaves and fruits tend to fall down when the branches of a tree are shaken vigorously.
e) Athletes are made to fall on cushioned floor during high jump.

OR

State Newton's second law of motion. Deduce a Mathematical expression for force from it and hence define 1 Newton.

Q35. a) Distinguish between True solution and suspension on the basis of following parameters (5)

i) Particle size ii) Appearance iii) Tyndall effect

b) A solution contains 50ml of sugar in 150 ml of water. Calculate its concentration.

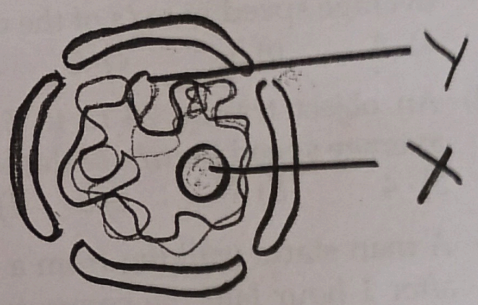
OR

a) Classify the following as physical or chemical change.
   i) Tarnishing of silver spoon
   ii) Sublimation of iodine
   iii) Burning of wood
   iv) Dissolving salt in water

b) What mass of potassium nitrate would be needed to produce a saturated solution of KNO_3 (potassium nitrate) in 50gm of water at 313 K. Given solubility of KNO_3 is 62gm in 100gm of water.

Q36. (5)

1) Differentiate between collenchyma and sclerenchyma (give 3 points)
2) a) Label 'X' and 'Y' in the given figure.
   b) Give one function of 'X'



Section – E

Q37. In nature, water keeps on changing its form. The heat of the sun evaporates the water on the surface of the earth into vapour. The evaporation of water takes place from oceans, rivers, lakes and ponds all the time. Sometimes, it is slow and sometimes, it is fast. The reverse process of evaporation is condensation, in which water vapour change into water by cooling. (1×4)

The formation of clouds, rain and water cycle is due to these two processes. Like evaporation, condensation also plays very important role in nature. Because of condensation, dew, fog, frost, hail, snow, etc., are formed under different conditions.

Q1. Which of the following is not correct statement?

a) Change of liquid state to vapour state is evaporation.
b) Evaporation depends upon the nature of liquid.
c) The evaporation causes heating.
d) Drying of wet clothes is an example of evaporation.

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Q2. Evaporation of water does not increase by
a) increase in temperature b) increase in humidity
c) increase in wind speed d) increase in surface area

Q3. Which of the following changes represent evaporation process?
a) Shrinking of grapes kept in thick sugar syrup.
b) Decrease of size of naphthalene balls
c) Water kept in earthen pot becomes cool during summer.
d) Formation of clouds.

Q4. Which of the following is not true?
a) Alcohol evaporates slower than water.
b) Condensation process is reverse of evaporation.
c) The conversion of solid CO2 into gaseous state directly is sublimation.
d) The boiling point of a liquid depends on the atmospheric pressure.

Q38. The speed of an object need not be constant. In most cases, objects will be in non-uniform motion. Therefore we describe the rate of motion of such objects in terms of their average speed. The average speed of an object is obtained by dividing the total distance travelled by the total time taken. That is, average speed -total distance travelled / total time taken. Answer the following. (1×4)

1) An object travels 20 m in 5 s and then another 20 m in 5s. What is the average speed in m/s of the object?
a) 4 b) 5 c) 6 d) none of these

2) An object travels 20 m in 5 s and then another 40 m in 5s. What is the average speed in m/s of the object?
a) 4 b) 5 c) 6 d) none of these

3) A man starts walking from a point P on a circular field of radius 7 km and after 1 hour later he comes to same point P after one complete round. find his speed. (take pi=22/7)
a) 30km/hr b) 40km/hr c) 44km/hr d) 33km/hr

4) A man travelled on square field of side 10m. He completed one round of field by taking time 2s, 3s 1s and 2s respectively for each side. Find his average speed.
a) 4m/s b) 5m/s c) 6m/s d) 7m/s

Q39. In many leaves, leaf stalks and young stems, a subepidermal tissue is present that provides both mechanical strength as well as flexibility. This prevents their tearing caused by bending during wind. The tissue is not found in roots. It is absent in many other plants which have other means of flexibility and mechanical strength. Read the above paragraph and answer the following: (1×4)

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a) What is the name of the tissue that provides both mechanical strength and flexibility?

1) Parcenchyma 2) Slerenchyma 3) collenchyma 4) Xylem

b) What is the characteristic of its cells?

1) Elongated and circular 2) Short and angular
3) Elongated and angular 4) Short and circular

c) Cell wall of these cell is

1) With irregular thickening 2) thin wall
3) excessively thickened wall 4) moderately thick wall

d) The most abundant tissue of the plant body is

1) Parenchyma 2) Collenchyma 3) Sclerenchyma 4) Meristematic tissue

OR

d) _____ tissue prevents the tearing caused by bending during wind in plants.

1) Parenchyma 2) Collenchyma 3) Sclerenchyma 4) Meristematic tissue