Bhavan's Tripura Vidyamandir

2nd Periodic Assessment: (2024-2025)

Class:- 9 **Subject:- Science**

Time:- 2 Hours Total :- 50 Marks

Name of the student: Roll: Section:

General Instructions :

a) There are 26 questions in this question paper with internal choice.
b) SECTION A consists of 14 questions carrying 1 mark each.
c) SECTION B consists of 6 short questions carrying 2 marks each.
d) SECTION C consists of 3 short answer questions carrying 3 marks each.
e) SECTION D consists of 3 long answer questions carrying 5 marks each.
f) All questions are compulsory.

SECTION A

1. Meenal lights an incense stick in her room, and the fragrance of stick spreads throughout the house. Which of the following options explain the phenomenon :

(a) gas particles carry a specific order
(b) gas particles are found and spread everywhere
(c) gas particles move fast and spread everywhere
(d) gas particles are closely spread and vibrate fast

2. A student adds 5g sugar to 100ml of water. He stirs the contents for 2 minutes. After some time, he notices a clear solution. Why is he unable to see sugar particles : notices a clear solution. Why is he unable to see sugar particles :

(a) They are colourless. (b) They settle at the bottom
(c) They dissolve in water (d) They evaporate when added to water

3. Which of the following is not a mixture :

(a) Soil (b) Air (c) Ammonia (d) Lemon juice

4. A mixture of sulphur and carbon disulphide is :

(a) heterogeneous and shows Tyndall effect
(b) homogeneous and shows Tyndall effect
(c) heterogeneous and does not show Tyndall effect
(d) homogeneous and does not show Tyndall effect

5. Which of the followings is an example of aerosol :

(a) Fog (b) Curd (c) Milk (d) Sponge

6. Intercalated discs are present in_____muscles :

(a) Striated (b) Smooth (c) Cardiac (d) Both b and c

7. Which of the following is a dead cell :

(a) Sieve tube (b) Companion cell
(c) Phloem Parenchyma (d) Phloem fibre

8. Kreb's cycle takes place in_____ :

(a) Lysosome (b) Mitochondria
(c) Nucleus (d) Endoplasmic reticulum

9. Tendons and ligaments are_____:

(a) Nervous tissue (b) Muscular tissue
(c) Dense connective tissue (d) Vascular tissue

10. The value of 'g'
    (a) Increases as we go above the earth's surface
    (b) Decreases as we go to the centre of the earth
    (c) Remains constant
    (d) Is more at equator and less at poles
11. The mass of the body on moon is 40kg, what is the weight on the earth.
    (a) 240kg (b) 392N (c) 240N (d) 400kg
12. What does the slope of the velocity-time graph give?
    (a) Speed (b) Velocity (c) Acceleration (d) Displacement
13. The inertia of an object causes the object to
    (a) decrease its speed (b) Increase its speed
    (c) resist any change in the state of its motion (d) decelerate due to friction
14. If the mass of the body is doubled and its velocity becomes half, then the linear momentum of the body will
    (a) become double (b) remain the same
    (c) become half (d) become four times

SECTION B

15. A sample of water under study was found to boil at 102 degree Celsius at normal temperature and pressure. Is the water pure? Will this water freeze at zero degree Celsius? Comment on your answer.

16. An unknown substance 'A' on thermal decomposition produces 'B' and 'C'. What is 'A'- an element, a Compound or a mixture? What would you observe when a saturated Solution of potassium chloride prepared at 60 degree Celsius is allowed to cool to room temperature? (1+1)

17. What are the constituents of phloem?

18. Compare between mitochondria and plastid?

19. What is circular motion? Give example?

20. Under what condition(s) is the magnitude of average velocity of an object equal to its average speed? What is the quantity which is measured by the area occupied below the velocity time graph?

SECTION C

21. A Solution has been prepared by mixing 5.6ml of alcohol with 75ml of water. Calculate the percentage(by volume) of alcohol in the solution? Write any one property of suspension? (2+1)

OR

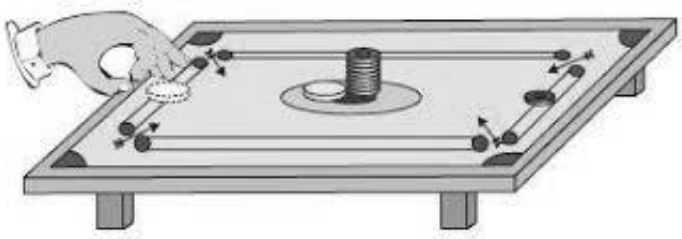
Three Students A, B and C prepared mixtures using chalk powder, common salt and milk respectively in water. Whose mixture: (a) would show Tyndall effect? (b) would settle down at the bottom when left undisturbed? A Solution of urea in water contains 16 grams of it in 120 grams of Solution. Find out the mass percentage of the Solution? (2+1)

22. How does a neuron look like? Explain with diagram?

OR

What would happen if there is no golgi apparatus?

23. Make a pile of similar carom coins on a table, as shown in Figure. Attempt a sharp horizontal hit at the bottom of the pile using another carom coin or the striker. If the hit is strong enough, the bottom **coin** moves out quickly. Once the lowest coin is removed, the other coins makes them fall vertically on the table. (1+1+1)



a) Why do the other coins fall vertically on the table?

b) On what factor does inertia of a body depends?

c) State Newton's 1st law of motion.

OR

a) While catching a fast moving cricket ball a fielder in the ground gradually pulls his hand backwards with the moving ball. Why?

b) What will happen if the ball stops suddenly?

c) Which law of motion can be described in this situation?

(1+1+1)

SECTION D

24. A glass tumbler containing hot water is kept in the freezer compartment of a refrigerator (temperature <0 degree Celsius). If you could measure the temperature of the content of the tumbler, draw the graph correctly represent the change in its temperature as a function of time and explain it? How does the temperature affect the kinetic energy of particles of matter? (3+2)

OR

On heating, Calcium carbonate gets converted into calcium oxide and carbon dioxide. Is this a Physical or a Chemical change? Can you prepare one acidic and one basic Solution by using the products formed in the above process, if so write the Chemical equation involved? Identify the elements from the following substances:- Sulphur, brine, hydrochloric acid, water, neon, Sugar? (3+2)

25. What is the role of epidermis in plants? Define meristematic tissue. Draw a labeled diagram of meristematic tissue and show different types of it? (2+1+2)

OR

Differentiate between striated, unstriated and cardiac muscles on the basis of their structures (3 points each).How does the cork act as a protective tissue. (3+2)

26. Differentiate between mass and weight.

A car falls off a ledge and drops to the ground in 0.5s. Let $g=10ms^{-2}$ (for simplifying the calculations).

(i) What is its speed on striking the ground ?
(ii) What is its average speed during the 0.5s ?
(iii) How high is the ledge from the ground ? (2+3)

OR

State Universal Law of Gravitation. Derive it's expression.

A stone is released from the top of a tower of height 19.6m. Calculate its final velocity just before touching the ground. (3+2)