

SUMMATIVE ASSESSMENT –I (20114)

SCIENCE CLASS – IX

Time allowed: 3 hours
90

Maximum Marks:

General Instructions:

- (i) All questions of section A and all questions of section B are to be attempted separately.
- (ii) Questions 1 to 3 in section A are one mark questions. These are to be answered in one word or in one sentence.
- (iii) Questions 4 to 7 in section A are two marks questions. These are to be answered in about 30 words each.
- (iv) Questions 8 to 19 in section A are three marks questions. These are to be answered in about 50 words each.
- (v) Questions 20 to 24 in section A are five marks questions. These are to be answered in about 70 words each.
- (vi) Questions 25 to 42 in section B are multiple choice questions based on practical skills. Each question is a one mark question. You are to select one most appropriate response out of the four provided to you.

Section A

1. List two ways to liquefy gases.
2. Why do passengers in a bus tend to fall backward when it starts suddenly.
3. Name the processes by which CO₂ and H₂O move into and out of the cell ?
4. "Water is a compound and not a mixture". Justify this statement giving two reasons.
5. What is meant by free fall ? Two bodies, one of mass 1g and other of mass 1 kg are dropped from the same height in vacuum. Compare the two time intervals in which the two bodies will hit the ground.
6. State the technical term for a medium which has exactly the same concentration as the cell ? Why does the size of the cell remain the same when placed in such a solution ?
7. Name the element(s) of xylem which
 - (i) help in transport of water and minerals,
 - (ii) stores food, and
 - (iii) provides mechanical support

8. Give reason :

- (a) Water droplets appear on the outer surface of a tumbler containing ice cold water.
- (b) People prefer to wear cotton clothes in summer.
- (c) On a hot sunny day people sprinkle water on the roof or open ground.

9. Identify the dispersed phase and dispersing medium in the following colloids.

- (a) Fog (b) Cheese (c) Coloured gem stone

10. A body thrown in the vertically upward direction rises upto a height „h“ and comes back to the position of its start. Calculate

- (a) the total distance travelled by the body and
- (b) the displacement of the body.

Under what condition will the magnitude of the displacement be equal to the distance travelled by an object ?

11. Which is having a higher value of momentum - A bullet of mass 10 g moving with a velocity of 400m/s or a cricket ball of mass 400g thrown with the speed of 90 km/h ?

12. Show that weight of an object on the moon is 1/6 of its weight on the earth.

[Given : mass of earth = 5.98×10^{24} kg, mass of moon = 7.36×10^{22} kg, radius of earth = 6.37×10^6 m, radius of moon = 1.74×10^6 m]

13. A 8000 kg engine pulls a train of 5 wagons, each of 2000 kg, along a horizontal track. If the engine exerts a force of 40,000 N and the track offers a friction force of 5,000 N then calculate :

- (a) the net accelerating force. (b) the acceleration of the train. (c) the force of the wagon 1 on rest of the wagons.

14. A stone is allowed to fall from the top of a tower 100m high and at the same time another stone is projected vertically upwards from the ground with a velocity of 25 m/s. Calculate when and where the two stones will meet ? (Take $g = 10\text{m/s}^2$)

15. (a) State the constituents of phloem ?

(b) How does cork act as a protective tissue ?

16. Give one reason for the following statements :

- (a) The blood is called connective tissue.
- (b) Muscles are able to contract and relax to bring about movements.
- (c) Muscles of heart are called involuntary muscles.

17. Describe the role played by the Lysosomes. Why these are termed as suicidal bags ? How do they perform their function ?

18. Name any three methods of irrigation and briefly describe them.

19. List the nutrients supplied by air, water and soil to the plants.

20. (A) Name the appropriate methods to separate the following :

(i) nitrogen from air (ii) dye from blue ink (iii) cream from milk (iv) ammonium chloride from common salt

(B) Crystallisation is a better technique than simple evaporation. Give one reason to justify the statement.

(C) Draw a labelled diagram to show the process of separation of immiscible liquids.

OR

(A) Draw a labelled diagram to show the process of separation of two miscible liquids by distillation.

(B) What is chromatography ? Mention its applications.

21. What is evaporation ? List the factors which affect the rate of evaporation and explain their effect on it.

OR

What is a solution ? Give an example. Mention four properties of a solution. How will you calculate the concentration in terms of mass by volume percentage of a solution ?

22. (a) State Newton's third law of motion. Give two examples to illustrate it.

(b) Explain why a cricketer moves his hands backwards while catching a fast moving cricket ball.

OR

(a) State law of conservation of momentum. State an example to illustrate it.

(b) A bullet of mass 20 g moving with a velocity of 200 m/s gets embedded in a wooden block of mass 980 g. Calculate the velocity acquired by the block.

23. An object starts linear motion with a velocity „u“ and under uniform acceleration „a“ it acquires a velocity „v“ in time „t“. Draw its velocity time graph. From this graph obtain the following equations.

(a) $V = u + at$

(b) $s = ut + \frac{1}{2}at^2$

OR

(a) Draw the shape of velocity-time graph of a uniformly accelerated motion of a body.

(b) Derive the velocity-position equation of motion ($v^2 = u^2 + 2aS$) graphically (with the help of a velocity-time graph)

24. (a) List the different ways in which biotic and abiotic factors affect stored food grains ?

(b) What preventive and controlling measures need to be taken before and after storing the grains ?

OR

(a) What are the two ways by which we can obtain fish for our food ? Explain. How is culture of Pomphret and Mackerel different from that of Catla and Rohu ?

(b) Give an example each for (i) Fresh water prawn (ii) Marine water prawn

Section B

25. A student was asked to mix the white of an egg with water and stir well. The student observed that

- (a) a transparent solution is formed.
- (b) a translucent mixture is formed.
- (c) egg white settles down at the bottom.
- (d) egg white floats on the surface.

26. If common salt is added to the unsaturated solution of water and common salt it will

- (a) become a colloid
- (b) become a suspension
- (c) start showing tyndall effect
- (d) remain a true solution

27. In laboratory, what precautions have to be taken with carbon disulphide ?

- (a) should be kept away from flame
- (b) should be kept away from carbon
- (c) should be kept away from distilled water
- (d) should be kept away from iron sulphide

28. What happens when iron nails are added to copper sulphate solution ?

- (a) the solution becomes pale green and reddish brown copper metal gets deposited.
- (b) the solution becomes colourless.
- (c) there is no reaction.
- (d) copper displaces iron.

29. Rama sets up an apparatus to find the melting point of ice. When half of the ice had melted, the temperature shown by the thermometer is :

- (a) more than 0°C
- (b) less than 0°C
- (c) 0°C
- (d) 100°C

30. When on heating water starts converting itself into steam, the temperature : 1

- (a) remains constant
- (b) continuously increases

(c) decreases (d) cannot be observed

31. A student heated a mixture of sand and two chemical substances which do not react chemically. In a few minutes the mixture started giving dense white fumes which condensed on a cool glass plate to form white powdery mass. This phenomenon is due

(a) Decantation (b) Evaporation (c) Sublimation (d) Distillation

32. While heating iron filings and sulphur, keep your eyes away from vapours because :

(a) Sulphur vapours may cause irritation in eyes

(b) Sulphur vapours are harmless

(c) Iron vapours may cause irritation in eyes

(d) H_2S gas will cause irritation in eyes

33. When we add aqueous solution of sodium sulphate to the aqueous solution of barium chloride, what is not observed ?

(a) Immediate formation of white precipitate.

(b) A clear solution as filtrate.

(c) A white residue on the filter paper.

(d) Residue easily soluble in water.

34. Common salt and sand can be separated by :

(a) Filtration

(b) Crystallisation

(c) Sedimentation and Decantation

(d) First dissolving in water, then by filtration and followed by crystallisation.

35. A student put five raisins each in two beakers A and B. Beaker A contained 50 mL of distilled water and beaker B has 50 mL of saturated sugar solution. After some time the student would observe that :

(a) raisins in beaker A were more swollen than those in beaker B.

(b) raisins in beaker B were more swollen than those in beaker A.

(c) raisins in both beakers A and B were equally swollen.

(d) raisins in beaker A did not swell up at all.

36. While observing an onion peel slide under the microscope. Rita noted the following characteristics :

(a) Presence of single nucleus in a cell Page 12 of 13

(b) Cells attached edge to edge without intercellular spaces

(c) Presence of cell wall around each rectangular cell

(d) All of these

37. Meena purchased a packet of arhar dal from a store. For testing the presence of metanil yellow in dal she should use :

(a) NaCl (b) iodine solution (c) HCl (d) safranin

38. If you are asked to test the presence of starch in a sample, you would add to it a few drops of :

(a) methylene blue (b) iodine (c) safranin (d) glycerine

39. Before scraping the inner side of cheek to prepare a temporary mount of cheek cells, the mouth is rinsed to :

(a) avoid injury

(b) make it alkaline

(c) make it acidic

(d) remove food particles

40. Lignin thin wall is found in :

(a) collenchyma (b) parenchyma (c) sclerenchyma (d) striated muscle

41. A student was asked to identify the process which occurs when the raisins are soaked in water :

(a) Osmosis (b) Plasmolysis (c) Endocytosis (d) Diffusion

42. Cells with evenly thickened, hard, lignified walls are :

(a) parenchyma (b) collenchyma (c) striated muscle cells (d) sclerenchyma