980604 - B1

कक्षा - IX

Class - IX SCIENCE
विज्ञान

Time allowed : **3 to 3½ hours**   Maximum Marks :   **80**

समय : **3 से 3½ घंटे**   अधिकतम अंक :   **80**

Total No. of Pages : **14**

कुल पृष्ठों की संख्या : **14**

General Instructions :
1. The question paper comprises of two sections,   A and B you are to attempt both the sections.
2. All questions are   **compulsory**.
3. There is no overall choice. However, internal choice has been provided in all the three questions of five marks category. Only one option in such question is to be attempted.
4. All questions of section A and all questions of section B are to be attempted separately.
5. Question numbers   **1** to **4** in section A are one mark questions. These are to be answered in **one word** or **one sentence**.
6. Question numbers   **5** to **13** are two mark questions, to be answered in about   **30 words**.
7. Question numbers   **14** to **22** are three mark questions, to be answered in about   **50 words**.
8. Question numbers   **23** to **25** are five mark questions, to be answered in about   **70 words**.
9. Question numbers   **26** to **41** in section B are multiple choice questions based on practical skills. Each question is a one mark question. You are to choose one most appropriate response out of the four provided to you.
10. An additional 15 minutes time has been allotted to read this question paper only.

सामान्य निर्देश :
1.   प्रश्न-पत्र दो भागों में बँटा है, **अ** तथा **ब** में, आपको दोनों भाग करने हैं।
2.   सभी प्रश्न **अनिवार्य** हैं।
3.   कुल मिलाकर कोई चयन नहीं है। यद्यपि पाँच अंकों की श्रेणी में तीनों प्रश्नों में आन्तरिक चयन दिया है। इन सभी प्रश्नों में केवल एक विकल्प हल करना है।
4.   सभी प्रश्न भाग **अ** और सभी प्रश्न भाग **ब** के अलग-अलग हल करने हैं।
5.   प्रश्न संख्या **1** से **4** भाग **अ** में एक अंक के प्रश्न हैं। इनका उत्तर **एक शब्द** या **एक वाक्य** में दीजिए।
6.   प्रश्न संख्या **5** से **13** दो अंक के प्रश्न हैं, इनका उत्तर लगभग **30 शब्दों** में दें।
7.   प्रश्न संख्या **14** से **22** तक तीन अंक के प्रश्न हैं, इनका उत्तर लगभग **50 शब्दों** में दें।
8.   प्रश्न संख्या **23** से **25** तक पाँच अंक के प्रश्न हैं, इनका उत्तर लगभग **70 शब्दों** में दें।
9.   प्रश्न संख्या **26** से **41** भाग **ब** में बहुविकल्पी प्रश्न हैं जो प्रयोगात्मक कौशल पर आधारित हैं। प्रत्येक प्रश्न एक अंक का प्रश्न है। आपको एक विकल्प छाँटना है चार विकल्पों में से जो सबसे उपयुक्त लगता है।
10.   इस प्रश्न-पत्र को पढ़ने के लिए 15 मिनट का समय दिया गया है। इस अवधि के दौरान छात्र केवल प्रश्न-पत्र को पढ़ेंगे और वे उत्तर-पुस्तिका पर कोई उत्तर नहीं लिखेंगे।

SECTION - A

1. Mention two ways to liquefy atmospheric gases.   1

2. Define velocity.   1

3. Why are sleepers used below the rails ?   1

4. Define hybridization.   1

5. A solution of acetone contains 30 mL of acetone in 570 mL of water. Calculate the percentage concentration of the solute in the solution.   2

6. Predict the physical state of matter in each case from the following characteristics.   2
    (a) It has a definite volume but no definite shape.
    (b) It is rigid and highly incompressible.
    (c) Kinetic energy of particles is minimum in this state.
    (d) It represents the most highly compressible form of matter.

7. A body can have zero average velocity but not zero average speed. Justify.   2

8. A train 100 m long is moving with a velocity of 60 kmh $^{-1}$. Find the time it takes to cross the bridge 1 km long.   2

9. Give reasons for :   2
    (a) When a carpet is beaten with a stick, dirt comes out of it.
    (b) It is difficult for a fireman to hold a hose which ejects large amount of water at high velocity.

10. (a) Name the two factors on which the buoyant force depends.   2
    (b) State the relationship between the buoyant force on an object and weight of the liquid displaced by it ?

11. State any two reasons for plant cells to have large central vacuole.   2

12. List any four salient features of meristematic tissue.   **2**

13. Which elements of xylem :   **2**
    (i) help in transport of water and minerals,
    (ii) store food, and
    (iii) provide mechanical support ?

14. How does the following affect the rate of vaporisation of a liquid ?   **3**
    (a) surface area
    (b) temperature
    (c) humidity.

15. Give reasons for the following :   **3**
    (a) A sponge is a solid but can be easily compressed.
    (b) Clothes dry faster on a windy day.
    (c) Smell of perfume travels a few yards away.

16. Draw diagrams to show the difference between the structures of the three types of   **3**
    muscle fibres.

17. List any six characteristics of parenchyma tissue.   **3**

18. Define manures. What are its three different kinds ? State two limitations of manures.   **3**

19. The velocity time graph of a ball of mass 20 g moving along a straight line on a level   **3**
    ground is given below. How much force does the ground exert on the ball to bring it to
    rest ?
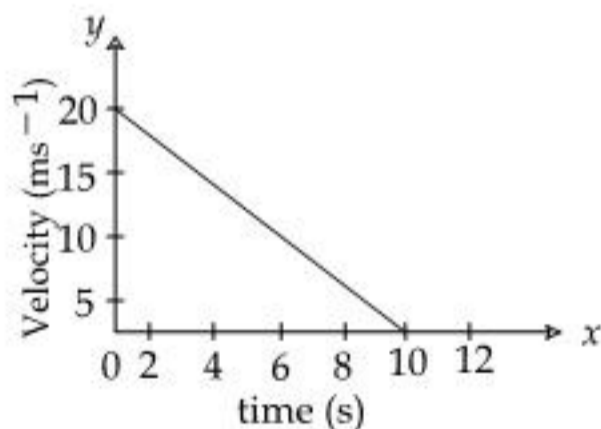
20. (a) A car accelerates uniformly from 18 kmh^{-1} to 36 kmh^{-1} in 5s. Calculate :   **3**
        (i) acceleration   (ii) distance covered by the car in that time.
    (b) The length of minute hand of a clock is 14 cm. Calculate the speed with which
        the tip of the minute hand moves.

21. If the mass of the moon is $\frac{1}{100}$th the mass of the earth and radius of moon is $\frac{1}{4}$th the radius of the earth, what is the weight of an object on the moon as compared to that on the earth ?

3

22. A ball thrown up vertically returns to the thrower after 6s. Find :
    (a) the velocity with which it was thrown up.
    (b) the maximum height it reaches.
    (c) its position after 4s. (Given g $= 9.8 \text{ m/s}^2$)

3

23. (a) List three difference between a physical change and a chemical change.
    (b) Identify the following as mixtures or compounds :
        (i) blood   (ii)   table salt   (iii) sugar   (iv)   brass

5

<center>OR</center>

(a) Write any three differences between a compound and a mixture.
(b) Classify the following into physical or chemical change :
    (i) burning of a candle
    (ii) freezing of water
    (iii) mixi ng of iron filings and sand
    (iv) fading of clothes.

24. (a) If the mass of a body is doubled, what happens to its acceleration when acted upon by the same force ?
    (b) It is easier to stop a tennis ball than a cricket ball moving with the same speed. Why ?
    (c) A girl of mass 40 kg jumps with a horizontal velocity of 5 ms $^{-1}$ on to a stationary cart with frictionless wheels. The mass of the cart is 3 kg. What is her velocity as the cart starts moving ?

5

<center>OR</center>

(a) What happens to a person travelling in a bus when the bus takes a sharp turn ? Give reason.
(b) A cricketer moves his hands backwards on catching a fast moving ball. Why ?
(c) A bullet of mass 0.02 kg is fired by a g un of mass 100 kg. If the speed of the bullet is 80 ms $^{-1}$. Calculate the recoil speed of the gun ?

25. (a) List any six functions of nucleus of a cell.
    (b) What is stratified squamous epithelium. State its function.

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<center>OR</center>

(a) Name the type of tissue whose cells are filled with fat globules. State its function.
(b) Write in tabular form three differences between a plant cell and an animal cell.

SECTION - B

26. Out of the following four mixtures, the one that appears clear and transparent is : **1**
    (a) White of an egg and water   (b) Fine sand and water
    (c) Starch and Water   (d)   Common salt and water

27. A student mixes white of an egg with water and stirs it well. After stirring he observes that : **1**
    (a) egg white settles at the bottom
    (b) egg white floats on the surface of water
    (c) a clear solution is formed
    (d) a cloudy solution is formed

28. Mohan heated a mixture of sulphur and iron filings in a china dish for some time till a grey - black product was formed. After some time he added 3 mL carbon di sulphide in it and stirred the contents. On stirring he observed that : **1**
    (a) yellow particles of sulphur dissolve
    (b) grey particles of iron dissolve
    (c) black iron sulphide dissolves
    (d) no change takes place

29. To separate a mixture of common salt and ammonium chloride by sublimation following apparatus was given by the laboratory assistant to a student. Two 200 mL beakers, iron stand, china dish, wire gauge bunsen burner, a glass rod cotton wool the part of apparatus missing is a : **1**
    (a) filter paper   (b) glass funnel
    (c) thermometer   (d)   petri dish

30. On placing a zinc plate in a beaker containing $CuSO_4$ solution, after some time it is observed that a deposition has taken place on the zinc plate which is : **1**
    (a) soft and black   (b) grey and hard
    (c) reddish brown   (d) smooth and shiny

31. When we mix barium chloride solution with sodium sulphate solution in a beaker we observe that the reaction mixture : **1**
    (a) turns blue   (b) forms a white precipitate
    (c) forms a yellow precipitate   (d) turns red

32. To separate a mixture of sand, common salt, iron filings and sulphur a student added carbon di sulphide to the mixture in a test tube and shook it well. He observed that one component dissolved. This component must be :   1

(a) sulphur   (b)   sand   (c)   common salt   (d) iron filings

33. If you have a mixture of sand, sodium chloride and ammonium chloride and you want to separate its components then which of the following sequence of techniques would you follow ?   1

(a) sublimation, adding water, evaporation, filtration

(b) sublimation, adding water, filtration, evaporation

(c) sublimation, evaporation, adding water, filtration

(d) sublimation, evaporation, filtration, adding water

34. A student made a list of following four precautions for the experiment on determination of melting point of ice. The incorrect precaution is :   1

(a) The bulb of the thermometer should be kept surrounded with crushed ice.

(b) Ice should be stirred regularly.

(c) Only the tip of the bulb of the thermometer should just touch the crushed ice.

(d) The temperature should be recorded keeping the eye in the level of mercury.

35. A student heats some water in a round bottomed flask for determining its boiling point. He keeps on recording its temperature readings. On the basis of his observation he would conclude that the temperature of water.   1

(a) keeps an increasing regularly.

(b) keeps an increasing irregularly.

(c) first increases slowly, then rapidly and eventually becomes constant.

(d) first increases gradually then becomes constant.

36. For observing plant tissues the stain generally used is :   1

(a) Methylene blue

(b) Safranin

(c) Phenolphthalein

(d) Glycerine

37. The organelle not observed in animal cell is :   1

(a) nucleus   (b) cytoplasm

(c) chloroplast   (d) plasma membrane

38. Cells of a tissue in the mounted slide were observed to have large central vacuole and irregularly thickened at corners. The given tissue is :   **1**

(a) parenchyma   (b) sclerenchyma

(c) xylem   (d) col   lenchyma

39. On observing the slide of a tissue it was found that the cells have thickened cell walls and inside the cell, there is no protoplasm. The given tissue is :   **1**

(a) parenchyma   (b) collenchyma

(c) sclerenchyma   (d) phloem

40. The reagent used to test the presence of metanil yellow in dal is :   **1**

(a) HNO_3 (b) iodine solution   (c) HCl (d) safranin

41. The solution used to test the presence of starch is :   **1**

(a) methylene blue   (b) iodine   (c)   safranin   (d)   conc HCl

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