SAMPLE QUESTION PAPER - 2

Solved

Time : 3 Hours
Maximum Marks : 90

General Instructions:
1. The question paper comprises of two sections, A and B. You have to attempt both the sections.
2. All questions are compulsory.
3. All questions of Section A and all questions of Section B are to be attempted separately.
4. Question numbers 1 to 3 in Section A are one mark questions. These are to be answered in one word or one sentence.
5. Question numbers 4 to 6 in Section A are two marks questions, to be answered in about 30 words.
6. Question numbers 7 to 18 in Section A are three marks questions, to be answered in about 50 words.
7. Question numbers 19 to 24 in Section A are five marks questions, to be answered in about 70 words.
8. Question numbers 25 to 36 in Section B are based on practical skills. Question 25 to 33 carry one mark each and Question numbers 34 to 36 carry two marks each.

SECTION ‘A’

1. Name the protein present in the muscles which is responsible for movement.  1
2. During the game of table tennis, if the ball hits a player it does not hurt him. On the other hand when a fast moving cricket ball hits a spectator it may hurt him. State reason.  1
3. Calculate the net force acting on a bus boarded with passengers, of mass 2000 kg, moving with a uniform velocity of 60 km/hr.  1
4. Explain:
   (a) Sponge though compressible is a solid.  2
   (b) Rubber band though stretchable is a solid.
5. Why are plants and animals made up of different tissues?  2
6. An astronaut carried a pot containing soil weighing 60 N from the earth to the surface of moon. He kept it there and just before return journey from moon to earth he weighed the soil there on the surface of moon and found that it was only 10 N. Why did its weight decrease and how much was the loss in mass of soil? \( (g_{\text{earth}} = 10 \text{ m/s}^2, g_{\text{moon}} = \frac{g_{\text{earth}}}{6}) \)  2
7. Compare solution, suspension and colloids in terms of:
   (a) stability   (b) filterability
   (c) Tyndall effect  3
8. You are provided with mixture of camphor, common salt and soil. Using various techniques how will you separate the components of this mixture. Write the various steps involved.  3

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9. Explain with the examples from your daily life where cooling is caused by evaporation.

10. Differentiate between collenchyma and scherenchyma tissues.

11. (a) Name the animal tissue which is present in the larynx?
(b) Write the chemical constituents of this tissue?
(c) What functions does this tissue perform?

12. Which accident will be more damaging, collision between two trucks moving with a speed of 50 km/hr or collision between two cars moving with a speed of 50 km/hr? Explain.

13. State three characteristics of action-reaction forces.

14. In which direction do the following forces act when an object is in motion:
(a) Frictional force
(b) Gravitational force
(c) Centripetal force

15. Surbhi along with her younger sister Vibha loved going to field with parents. She helped taking out certain plants from the field using khrupi. She told Vibha that only selected plants need to be uprooted. Vibha asked her why only specific plants need to be pulled at Surbhi explained that these were weeds which are not desired with the crop.
(i) Why is it essential to remove weeds?
(ii) Name two common weeds?
(iii) What values are exhibited by Surbhi here?

16. State the meaning of sustainable agriculture. Name the scientific practices that you can undertake to obtain higher yield from agriculture.

17. (i) Find the value of the acceleration due to gravity at a height of 12,800 km from the surface of the earth. Earth's radius = 6400 km.
(ii) State Newton's law of gravity and write the mathematical equation describing it.

18. Define uniformly accelerated motion and uniform motion. Also write any two equations of uniformly accelerated motion.

19. Identify the following tissues:
(a) The epithelial tissue which has pillar like tall cells?
(b) The cells of this tissue are filled with fat globules.
(c) The movement of this tissue pushes the mucus forward to clear respiratory tract.
(d) It gives buoyancy to lotus to help it afloat.
(e) Tissue present in lung alveoli.

20. Write your observations when the following processes take place:
(a) An aqueous solution of sugar is heated to dryness.
(b) A saturated solution of potassium chloride prepared at 60° C is allowed to cool at room temperature.
(c) A mixture of iron filings and sulphur powder is heated strongly.
(d) A beam of light is passed through a colloidal solution.
(e) Dil HCl is added to the mixture of iron and sulphur.

21. (a) Prove that if the earth attracts two bodies placed at the same distance from the centre of earth, with equal force; then their masses will be the same.
(b) Mathematically express the acceleration due to gravity that is expressed by a free falling object.
(c) Why is 'G' called a universal constant?

22. The following graph describes the motion a girl going to meet her friend who stays 50 m from her house.
(a) How much time she takes to reach her friend’s house?
(b) What is the distance travelled by the girl during the time interval 0 to 12 min?
(c) During which time interval she is moving towards her house?
(d) For how many minutes she was at rest, during the entire journey?
(e) Calculate the speed by which she returned home.

23. (a) **Give reason for the following:**
   
   (i) Why do we see droplets of water on the outer surface of a glass containing ice-cold water?
   (ii) After a hot sunny day, people sprinkle water on the roof or open ground.

   (b) Describe an activity with labelled diagram to illustrate the effect of increase of temperature on ice.

24. The quantity and quality of food is decreasing day-by-day. Taking into account the drastic increase in population, mention the steps taken to improve this condition.

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**SECTION ‘B’**

25. There are two test tubes provided to you. One has sugar solution and the other has starch dissolved in water. To differentiate one from the other, the correct way to test is:
   
   (a) Smell on heating
   (b) Observe colour change by adding dil HCl
   (c) Observe colour change by adding iodine solution
   (d) Solubility in water

26. In a sample of food to observe the positive test for starch, Rohit should use the sample of:
   
   (a) Sugar
   (b) Boiled egg's white part
   (c) Potato
   (d) Apple juice

27. When the bar magnet is rolled over mixture ‘A’ of iron and sulphur over the compound ‘B’ Iron sulphide, which of the following observation is incorrect?
   
   (a) Mixture ‘A’ is heterogeneous
   (b) Compound ‘B’ is homogeneous
   (c) Iron chlings to the magnet from mixture ‘A’
   (d) Iron dings to the magnet from compound ‘B’

28. Sample ‘A’ is mixture of iron filings and sulphur powder. Sample ‘B’ is a compound of Iron sulphide. Reema was asked to study the effect of heat on both sample ‘A’ and ‘B’. Which of the following observations was incorrect?

   ![Sample A and Sample B diagram]

   (a) Yellow coloured sulphur from sample ‘A’ starts melting.
   (b) Sample ‘A’ mixture of iron and sulphur glows.
   (c) No effect of heat on sample ‘B’
   (d) Colour of sample ‘B’ changes from black to yellow

29. Take dilute sulphuric acid in a test-tube and put a few zinc granules into test-tube. You would observe that:
   
   (a) Zinc granules changes to powder
   (b) Colour of zinc changes from grey to white
(c) Size of zinc granules keep on decreasing
(d) Surface of zinc metal become bright

30. While observing a stained mount of onion peel under high power compound microscope, the part of the cell that takes very little stain is:
(a) Nucleus  (b) Cytoplasm  (c) Vacuole  (d) Cell wall

31. You are shown two slides of plant tissues - parenchyma and sclerenchyma. You can identify the sclerenchyma by the:
(a) Location of nucleus  (b) Thickness of cell wall  (c) Size of cells  (d) Position of vacuoles

32. A mixture containing (I) Sodium chloride (II) Camphor and (III) Ammonium chloride was heated in a china dish. The substance left in the china dish was:
(a) (I) and (II)  (b) (II) and (III)  (c) (I) only  (d) (III) only

33. A student performed the experiment, "To establish relationship between weight of a rectangular wooden block lying on a horizontal surface and minimum force required to just move it using a spring balance". It the weight of the given wooden block is nearly 200 g wt and three known weights of 100 g wt, each are to be successively placed on the wooden block to take three more readings, then which one of the following balances available in the laboratory would you select for the best results in the experiment? It is known that a force of 90 g wt is required to just move the block on the surface.
(a) Range 0-100 g wt; Least count 1.0 g wt.
(b) Range 0-200 g wt; Least count 2.0 g wt.
(c) Range 0-250 g wt; Least count 2.0 g wt.
(d) Range 0-500 g wt; Least count 5.0 g wt.

Answer the following:

34. Four students A, B, C and D were given funnels, filter paper, test-tubes, test-tube stands, common salt, chalk powder, starch and glucose powder. They prepared the true solution, suspension and colloidal solutions. Test-tubes were arranged as shown in the figure. Observe the filtrate obtained in the test-tubes and residue on filter paper. Conclude about filtrate, residue and type of solution.

35. In an experiment to determine the melting point of ice in laboratory, what form of ice should be preferably used? When should the reading of thermometer be noted?

36. A group of students recorded the following readings while performing the experiment to calculate the percentage of water absorbed by raisins. Calculate the percentage of water absorbed by raisins
Mass of dry raisins = 2.0 g
Mass of raisins after absorbing water = 3.0 g