SUMMATIVE ASSESSMENT-1 (2013-14)

9/2013

CLASS : IX

SUBJECT : SCIENCE (SET-I)

Time : 3 Hrs.   M.M.: 90
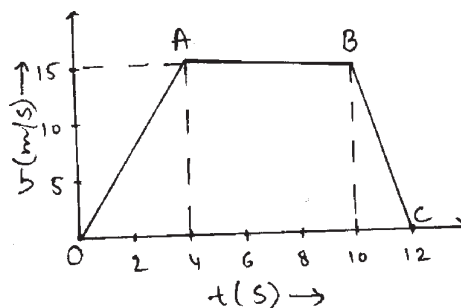
General Instructions :

(i)   The question paper comprises of two Sections, A and B. You are to attempt both the sections.

(ii) All questions are compulsory.

(iii) All questions of Section-A and all questions of Section-B are to be attempted separately.

(iv) Question numbers 1 to 3 in Section-A are one mark questions. These are to be answered in one word or in one sentence.

(v)   Question numbers 4 to 6 in Section-A are two marks questions. These are to be answered in about 30 words each.

(vi) Question numbers 7 to 18 in Section-A are three marks questions. These are to be answered in about 50 words each.

(vii) Question numbers 19 to 24 in Section-A are five marks questions. These are to be answered in about 70 words each.

(viii) Question numbers 25 to 33 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.

(ix) Question numbers 34 to 36 in Section-B are questions based on practical skills and are two marks questions.

SECTION-A

Q1. For any substance, why does the temperature remain constant during the change of state?   (1)

Q2. Why does a passenger sitting in a moving car slip to one side of the seat when the car takes a sharp turn?   (1)

Q3. Name the cell organelle, other than mitochondria that has its own DNA and ribosomes.   (1)

Q4. A process is used to separate a mixture containing two miscible liquids that have sufficient difference in their boiling points. Name this process. Give one example also.   (2)

Q5. If a planet existed, whose mass and radius were both half of that of earth. What would be the acceleration due to gravity at the surface of the planet with respect to that on the surface of the earth?   (2)

Q6. How can a plant cell withstand much greater changes in the surrounding medium than an animal cell? (2)

Q7. (a) Differentiate between homogeneous and heterogeneous mixture.

(b) Give the composition of bronze. (3)

Q8. (a) Which separation techniques are applied for the separation of the following:

(i) butter from curd   (ii) salt from sea water

(b) Explain that burning of a candle is both chemical change and physical change. (3)

Q9. (a) Convert 300K into celsius scale.

(b) Suggest a method to liquefy atmospheric gases.

(c) What type of clothes should we wear in summers and why? (3)

Q10. The brakes applied to a car produce an acceleration of 6 m/s^2 in the opposite direction to the motion. If the car takes two seconds to stop after the application of brakes, calculate the distance it travels during this time. (3)

Q11. (a) State the law of inertia.

(b) Obtain first law of motion from the mathematical expression of the second law of motion. (3)

Q12. A car falls off a ledge and drops to the ground in 0.5 seconds.

(a) What is its speed on striking the ground?

(b) What is its average speed during the 0.5 seconds?

(c) How high is the ledge from the ground? (take $g = 10 \text{ m/s}^2$) (3)

Q13. Two objects, each of mass 1.5 kg are moving in the same straight line but in opposite directions. The velocity of each object is 2.5 m/s before the collision during which they stick together. What will be the velocity of the combined object after collision? (3)

Q14. State Newton's universal law of gravitation. Express it mathematically. Mention any two phenomenon which were explained on the basis of this law. (3)

Q15. (a) Differentiate between tendon and ligament on the basis of -

(i) location   (ii) flexibility

(b) Name the tissue which stores fat. (3)

Q16. Draw a neat diagram of a neuron and label the following parts.

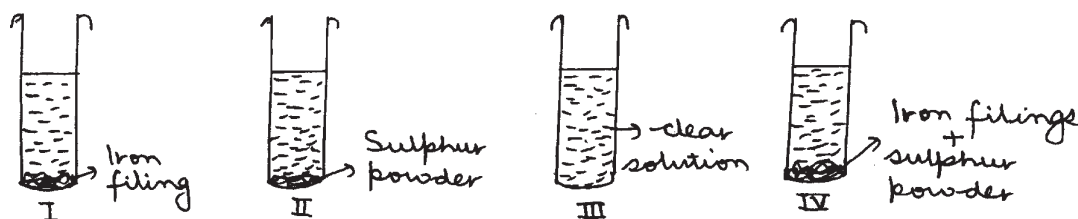(a) dendrite   (b) axon

(c) cell body   (d) nerve endings (3)

Q17. 'X' is the cell organelle, which is known as 'Power house of the cell'. Identify 'X' and explain its functions. (3)

Q18. Aayushi and Ranjan organised a workshop on "Enhancing food production in India". Aayushi suggested that the farmers should use vermicompost instead of fertilizers. Also, they can adopt various cropping strategies to improve the productivity. (3)

   (a)   Define vermicompost

   (b)   Suggest one such cropping strategy and explain its effectiveness in improving crop production.

   (c)   What value is shown by Aayushi and Ranjan in the above given situation?

Q19. (a)   Name one local and one exotic variety of honey bee.

   (b)   Enlist the desirable characteristics of exotic bee variety.

   (c)   Define - Pasturage (5)

Q20. (a)   Both boiling and evaporation convert liquid into vapours. What is the difference between the two processes?

   (b)   List four factors which affect the rate of evaporation.

   (c)   At many places, especially in rural areas, people often sprinkle water on the ground in front of their houses during hot summer evenings. Why? (5)

Q21. (a)   Draw a flow diagram showing the steps for obtaining gases from air.

   (b)   Write two applications of chromatography technique. State its principle also. (5)

Q22. (a)   Define force.

   (b)   The velocity-time graph of a car of 1000 kg mass is given -

      (i)   When is the maximum force acting on the car? Calculate it.

      (ii)   What is the retarding force?

      (iii)   For how long is there no force acting on it? (5)

Q23. Define momentum. State its S.I. unit. An object of mass 50 kg is accelerated uniformly from a velocity of 4 m/s to 8 m/s in 8s. Calculate the initial and final momentum of the object. Also find the magnitude of the force exerted on the object. (5)

Q24. (a) Name two factors responsible for loss of food grains during storage.

(b) How do these factors affect the stored grains?

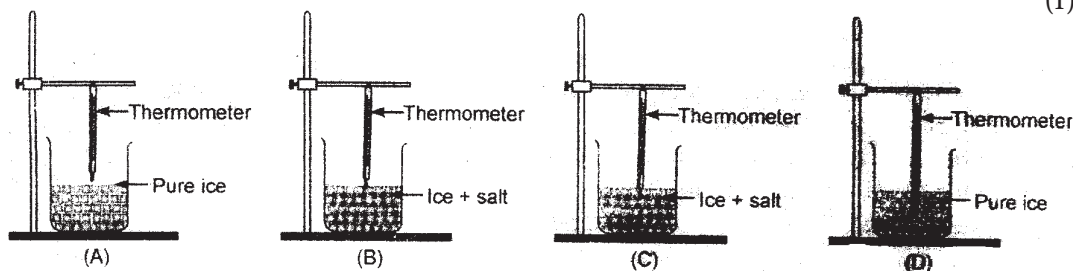(c) State any two control measures to be taken before grains are stored.   (5)

SECTION-B

Q25. Which among the following holds good for a colloidal solution?   (1)

(a) Particles of solute settle on standing for long.

(b) Particles of solute are visible to the naked eye.

(c) Particles of solute scatter a beam of light and make the path of light visible.

(d) Solution is transparent.

Q26. When a mixture of iron filings and sulphur powder is dissolved in carbon disulphide, the resulting solution will appear as :   (1)

(a) I   (b) II
(c) III   (d) IV

Q27. Which of the following is the correct method for finding the melting point of ice?   (1)

(a) A   (b) B
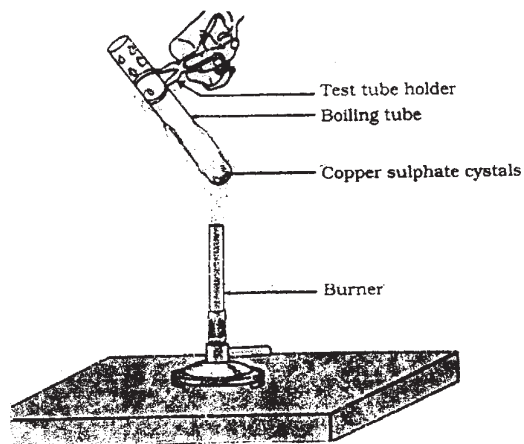(c) C   (d) D

Q28. A strip of magnesium metal is burnt in the flame. It is observed that :   (1)

(a) a yellow light appears   (b) a white dazzling light appears

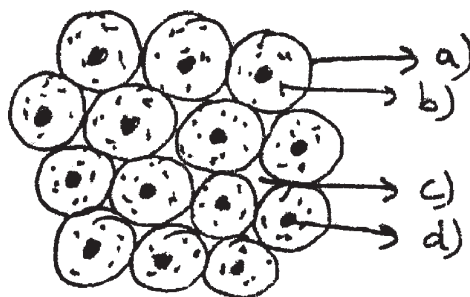(c) magnesium starts melting   (d) lot of black smoke is produced

Q29. Components of a mixture of sand, common salt and ammonium chloride can be separated. Select the correct sequence of methods of separation : (1)

(a) sublimation, dissolving in water, filtration, evaporation

(b) sublimation, filtration, dissolving in water, evaporation

(c) sublimation, evaporation, dissolving in water, filtration

(d) evaporation, filtration, dissolving in water, sublimation

Q30. The following data was obtained on performing an experiment for determining the percentage of water absorbed by raisins : (1)

Mass of water in the beaker = 50 g

Mass of dry raisin = 20 g

Mass of raisins after soaking in water = 30 g

The percentage of water absorbed by raisins will be

(a) 10% (b) 25%

(c) 45% (d) 50%

Q31. Students were instructed to add a few drops of iodine solution to each of the following samples : (1)

(I) cooked idli (II) rice powder

(III) glucose (IV) talcum powder

The content turned blue black in

(a) I and II (b) II and III

(c) III and IV (d) I and IV

Q32. Akshay observed onion peel under the microscope. To prepare a temporary mount of onion peel, staining and mounting is respectively done with (1)

(a) methylene blue and glycerine (b) safranin and glycerine

(c) glycerine and safranin (d) glycerine and methylene blue

Q33. The cellular component not seen while observing the slide of cheek cells under a compound microscope is (1)

(a) cytoplasm (b) cell membrane

(c) nucleus (d) chromosomes

Q34. Using a horizontal force of 300 N, we intend to move a wooden cabinet across a floor at a constant velocity. What is the frictional force that will be exerted on the cabinet? How can it be minimised? (2 points) (2)

Q35. On heating blue coloured copper sulphate crystals in a dry boiling tube, white coloured crystals are obtained - (2)

(a) Identify blue and white coloured salts.

(b) Water droplets are seen on the inner walls of the boiling tube. Where have these come from?

Q36. Rohan observed a permanent slide of parenchyma tissue under the microscope. Write the correct labelling of parts a, b, c and d. (2)

SUMMATIVE ASSESSMENT-1 (2013-14)

CLASS : IX

SUBJECT : SCIENCE (SET-II)

Time : 3 Hrs.   M.M.: 90

General Instructions :

(i) *The question paper comprises of two Sections, A and B. You are to attempt both the sections.*

(ii) *All questions are compulsory.*

(iii) *All questions of Section-A and all questions of Section-B are to be attempted separately.*

(iv) *Question numbers 1 to 3 in Section-A are one mark questions. These are to be answered in one word or in one sentence.*

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SECTION-A

Q1. Convert 573K into celsius scale.   (1)

Q2. If you pull out a piece of paper kept under a book quick enough, the book does not move. Why?   (1)

Q3. Name the functional unit of chromosome.   (1)

Q4. State any two features of a chemical change. Give an example of such a change.   (2)

Q5. Planet Mars has radius one half of the earth and mass $1/9^{th}$ of the earth. Find the value of g on the surface of Mars. Given that value of g on the surface of earth is 9.81 m/s^2.   (2)

Q6. State one feature that is similar and one feature that is dissimilar with respect to mitochondria and plastids.   (2)

Q7. (a) Differentiate between compounds and mixtures.

(b) Give the composition of brass. (3)

Q8. (a) A solution contains 40g of common salt in 320 g of water. Calculate the percentage concentration of the solution.

(b) State the dispersed phase and dispersion medium of smoke. (3)

Q9. (a) Dry ice is obtained when a gas is compressed at high pressure. Name the gas and state what happens to it when pressure is released.

(b) Why is ice at 273K more effective in cooling than water at the same temperature?

(c) Name the state of matter in which -

(i) Layers of particles can slip and slide over each other.

(ii) Particles just move around randomly, because of very weak force of attraction. (3)

Q10. A car accelerates uniformly from 18 km/h to 36 km/h in 5 seconds. Calculate - (i) acceleration, (ii) distance covered by the car in that time. (3)

Q11. (a) State Newton's third law of motion.

(b) Show that first law of motion is a special case of second law of motion when force acting is zero. (3)

Q12. What happens to the magnitude of the force of gravitation between two objects of masses 'm_1' and 'm_2' separated by a distance 'd' if -

(i) distance between the objects is tripled?

(ii) mass of both objects is doubled?

(iii) mass of both objects as well as the distance between them is doubled? (3)

Q13. An object A of mass 2 kg moving with a velocity of 3 m/s collides head on with object B of mass 1 kg moving in the opposite direction with a velocity of 4 m/s. After collision both bodies stuck together and move with a common velocity. Find this velocity. (3)

Q14. What is free fall? Derive an expression for acceleration due to gravity. (3)

Q15. (a) Differentiate between bone and cartilage on the basis of matrix and flexibility.

(b) Name the tissue which forms the covering around the blood vessels. (3)

Q16. Draw a neat diagram of a section of phloem and label the following parts -

(i) sieve plate   (ii) sieve tube

(iii) phloem parenchyma   (iv) companion cell (3)

Q17. 'X' is the cell organelle which is known as 'kitchen' of the cell. Identify 'X' and explain its two types. (3)

Q18. Rita and Sangeeta went to the market for shopping. Rita preferred the counter on which only organic products were sold while Sangeeta went to the other counter Sangeeta found that on her counter the products were cheaper as compared to Rita's counter. But she was surprised that Rita still purchased organic products only as she stated that they are obtained by organic farming.

(a) What is organic farming?

(b) How are inorganic substances used in agriculture affecting our environment?

(c) Mention the values shown by Rita. (3)

Q19. Write three ways in which the insect-pests attack the plants? Differentiate between macronutrients and micronutrients required by plants with examples. (5)

Q20. (a) Give reasons -

(i) Water kept in an earthen pot becomes cool during summer.

(ii) Salt and sugar crystals take the shape of the container in which they are kept, yet they are considered as solids.
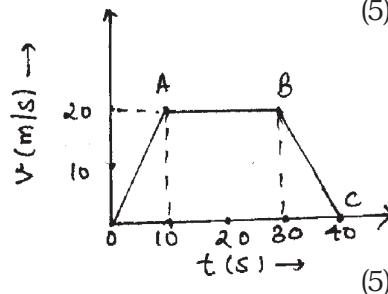
(iii) A gas exerts pressure on the walls of the container.

(b) Name two gases which are supplied in compressed form in homes and hospitals.

(c) A sample of water under study was found to boil at 102°C at normal pressure. Is the water pure? Comment. (5)

Q21. (a) Name the process used to separate a mixture of two miscible liquids. Write its principle also.

(b) Draw a neat labelled diagram of the apparatus used for separating acetone and water from their mixture.

(c) Can all mixtures of two or more miscible liquids be separated by this process? Justify. (5)

Q22. (a) Define force and give its SI unit.

(b) For an object of mass 10 kg the velocity-time graph is given. Find the force experienced by the object during motion represented by the graph in the regions OA, AB and BC. (5)
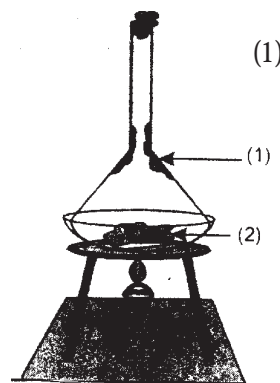
Q23. (a) State the law of conservation of momentum.

(b) Why is a person hit harder when he falls on a hard floor than when he falls on sand from the same height?

(c) A bullet of mass 20 g is fired horizontally with a velocity 100 m/s from a pistol of mass 1.5 kg. Calculate the recoil velocity of the pistol.   (5)

Q24. Explain the process of composite fish culture. What is the major problem faced in this process? How can it be overcome?   (5)

SECTION-B

Q25. A student mixed egg albumin in water and found the resulting solution to be :

(a) clear and transparent   (1)

(b) opaque

(c) translucent

(d) egg albumin does not mix but settles down at bottom.

Q26. Which of the following does not hold true for a mixture?   (1)

(a) Its constituents are present in varied proportions

(b) The constituents retain their properties.

(c) The constituents are usually separated by chemical methods

(d) Formation of a mixture is a physical change

Q27. A student takes some water in a beaker and heats it over a flame for determining its boiling point. He keeps on taking its temperature reading. He observes that the temperature of the water :   (1)

(a) keeps on increasing regularly

(b) keeps on increasing irregularly

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

(d) first increases gradually and then becomes constant

Q28. When dilute hydrochloric acid is added to granulated zinc placed in a test tube, the observation made is :   (1)

(a) the surface of the metal turns white

(b) the reaction mixture turns milky

(c) the odour of chlorine is observed

(d) a colourless and odourless gas is evolved with bubbles

Q29. The adjoining diagram illustrates the method of separation of a mixture of sand, ammonium chloride and common salt. In this diagram the component (1) and (2) after heating will respectively be -
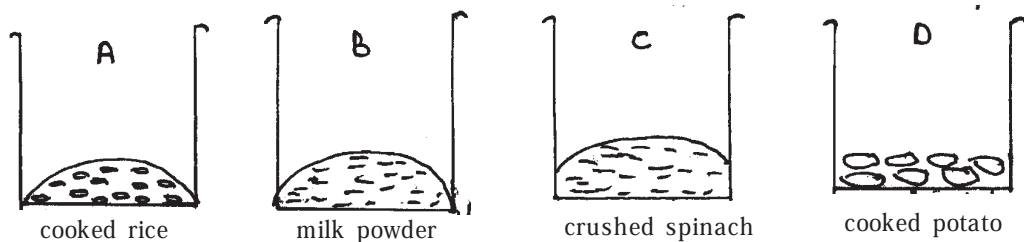
(a)   (common salt + sand) and ammonium chloride respectively

(b)   ammonium chloride and (common salt + sand) respectively

(c)   (ammonium chloride + sand) and common salt respectively

(d)   (ammonium chloride + common salt) and sand respectively

Q30. The percentage of water absorbed by raisins when initial weight of raisins, W_1 is 2 gm and final weight after keeping them in water for one hour, W_2 is 3 gm will be: (1)

(a)   30%   (b)   50%

(c)   25%   (d)   75%

Q31. Students were instructed to add a few drops of iodine solution to each of the following samples.   (1)

A	B	C	D
cooked rice	milk powder	crushed spinach	cooked potato

The content turned blue-black in -

(a)   A and B   (b)   B and C

(c)   B and D   (d)   D and A

Q32. Rudra uses the following procedure in mounting the onion peel on a glass slide :   (1)

(i)   use cover slip on the slide

(ii)   stain the material, wash and mount in glycerine

(iii)   observe under high power

(iv)   observe under low power

He should have followed the sequence :

(a)   (i), (ii), (iii), (iv)   (b)   (ii), (iii), (iv), (i)

(c)   (ii), (i), (iv), (iii)   (d)   (i), (iv), (iii), (ii)

Q33. Ria observed cheek cells under the microscope. To prepare a temporary mount of cheek cells, staining and mounting is respectively done with :   (1)
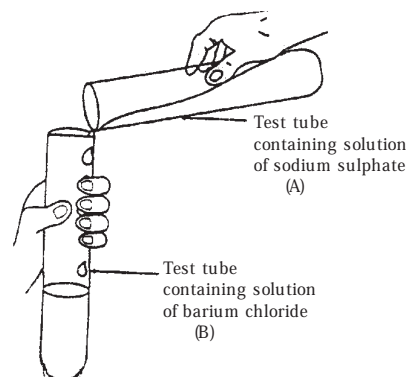
(a)   methylene blue and glycerine   (b)   safranin and glycerine

(c)   glycerine and safranin   (d)   glycerine and methylene blue

Q34. Using a horizontal force of 400 N, we intend to move a wooden cabinet across a floor at a constant velocity. What is the frictional force that will be exerted on the cabinet? How can friction be minimised? (two points).   (2)

Q35. Observe the given diagram and answer the following questions -   (2)

On mixing 'A' and 'B' a precipitate is formed.

(a)   What is the colour of the precipitate formed?

(b)   Name the compound precipitated.

Test tube containing solution of sodium sulphate (A)

Test tube containing solution of barium chloride (B)

Q36. Rhea observed the permanent slide of nerve cell under the microscope. Write the correct labelling of parts a, b, c and d.   (2)