Cambridge

SNP

Cambridge

HALF YEARLY EXAMINATION — 2013-14

Science

Time Allowed : 3 Hrs. **Class – IX** 2013-14 **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) There is no overall choice.***
- ***(iv) All questions of Section-A and all questions of Section-B are to be attempted separately.***
- ***(v) Question numbers 1 to 3 in Section-A are one mark questions. These are to be answered in one word or in one sentence.***
- ***(vi) Question numbers 4 to 7 in Section-A are two marks questions. These are to be answered in about 30 words each.***
- ***(vii) Question numbers 8 to 19 in Section-A are three marks questions. These are to be answered in about 50 words each.***
- ***(viii) Question numbers 20 to 24 in Section-A are five marks questions. These are to be answered in about 70 words each.***
- ***(ix) Question numbers 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***
- ***(x) Attempt Physics, Chemistry and Biology on separate sheets.***
- ***(xi) Physics - Q. no. 3,7,15,16,17,18,19,23,24,41-42,***

  Chemistry - Q. no. 1,4,10,11,21,22,31-40

  Biology - Q. no. 2,5,6,8,9,12,13,14,20,25-30

Section-A

1. The molecules of water have more energy as compared to molecules of ice at same temperature. Justify this statement.
2. Name the cell organelle which you would associate with elimination of old and worn out cells.
3. Name the force which is responsible for change in position or state of an object.

[P.T.O.]

4. Properties of a compound are different from its constituents, while a mixture shows the properties of its constituent elements. Justify this statement taking the example of iron and sulphur.

5. Identify and name the following cell structures :
   (a) The undefined nuclear region of prokaryotic cell.
   (b) Site of energy release inside the cell.

6. Draw a labelled diagram of a neuron.

7. State universal law of gravitation. Write S.I. unit of 'G'.

8. (a) State two characteristics of an ideal cattle shed.
   (b) Cattle are mainly reared for milk or performing agricultural tasks. What are these two categories of cattle known as?
   (c) Name two indigenous breeds of cattle.

9. What are manures? State two kinds of manure. How does manure affect the soil fertility?

10. (a) A sugar syrup of mass 214.2g contains 34.2g of sugar. Calculate the concentration of sugar in the syrup.
    (b) What is a solution?

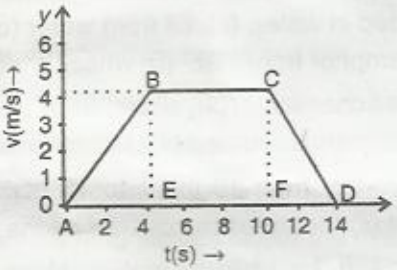
11. Draw a flow chart showing the separation of components of air. Also, name this process.

12. Name two cell organelles that contain their own genetic material. State one function of each.

13. (a) Write two basic structural differences between Parenchyma and Collenchyma tissues?
    (b) Identify and name the tissues 'A' and 'B' from the given diagrams.

14. (a) State one point of difference between xylem and phloem.
    (b) Draw a neat diagram of xylem vessel and a tracheid.

15. Study the given graph and answer the following questions



(i) Which part of the graph shows accelerated motion? (ii) Which part of the graph shows retarded motion? (iii) Calculate the distance travelled by the body in first 4 seconds of journey graphically.

16. A man weighing 60 kg runs along the rails with a velocity of $5ms^{-1}$ and jumps into a car of mass 100 kg standing on the rails. Calculate the velocity with which car will start travelling along the rails.

17. (i) State reason for the following :
    (a) Luggage on the roof of a bus must be tied.
    (b) It is dangerous to jump out of a moving bus.
    (ii) Name the physical quantity corresponding to rate of change of momentum, also mention its SI unit.

18. A stone is thrown vertically upwards with a velocity of 40 ms^{-1} and is caught back. Taking g = 10 ms^{-2}, calculate the maximum height reached by the stone. What is the net displacement and total distance covered by the stone?

19. Define mass and weight of an object. Write their S.I. units. An object has mass of 20 kg on earth. What will be its mass and weight on the surface of the moon? (g on moon = 1.6 ms^{-2})

20. (a) What are the common names of *Apis dorsata, Apis florae* and *Apis cerena indica*?
    (b) Name one Italian bee variety. Also justify the use of Italian bee for honey production giving two reasons.
    (c) State one factor which affects the quality of honey produced.

21. (a) Compare a block of wood, water and air on the basis of the following :
    (i) Compressibility (ii) Particle motion (iii) Rigidity
    (b) Account for the following
    (i) Gases exert pressure on the walls of the container.
    (ii) Liquid can be called as fluids.

22. (i) Name the separation techniques which you will apply for the separation of the following mixtures : (a) small pieces of metal in the engine oil of a car. (b) fine mud particles suspended in water. (c) oil from water (d) sodium chloride from its solution in water (e) camphor from salt. (f) wheat grains from husk

(ii) Classify the following as a chemical or physical change : (a) Water boils to form steam (b) Burning of paper (c) An almirah gets rusted. (d) Making a fruit salad with raw fruits.

23. (a) A car accelerates uniformly from 10 ms^{-1} to 15 ms^{-1} in 5 seconds. Calculate : (i) the acceleration and (ii) the distance covered by the car in that time.

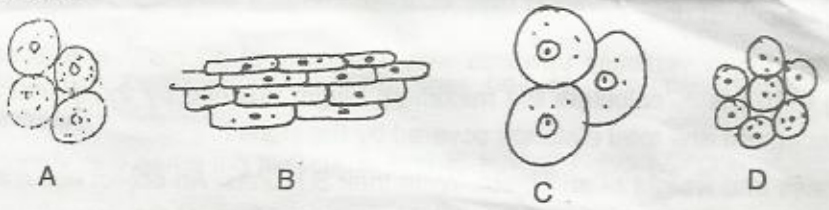
(b) Draw distance-time graph for uniform motion along a straight line. Name the physical quantity given by slope of $s - t$ graph.

24. (a) Calculate force of friction acting on a body of mass 200 kg moving initially with a speed of 15 ms^{-1} if it comes to rest in 3s. What distance will it cover before stopping?

(b) Define inertia. You are provided with three bodies made up of wood, rubber and iron of same shape and size. Which one of them will have greater inertia? Why?

Section-B

25. Raman prepared a temporary mount of onion peel and observed it under a microscope. His teacher asked him to draw the diagram. The correct diagram of the cells found in onion peel is :



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

26. While observing a temporary mount of human cheek cells under a microscope a student noted that the correct feature of cheek cell is : (i) absence of cell wall, nucleus and plastid (ii) absence of nucleus, plastid (iii) absence of cell wall, plastid and intercellular space (iv) absence of intercellular space and nucleus

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

27. While preparing a temporary mount of onion peel cells or human cheek cells, a cover slip is put on the mounted material on a slide very gently to :

(a) avoid the crushing of mounted material

(b) avoid the entry of air bubbles

(c) avoid oozing of stain

(d) avoid oozing of glycerine

28. Sheela observed a slide of striated muscle fibre, under a microscope. Its cells would be :

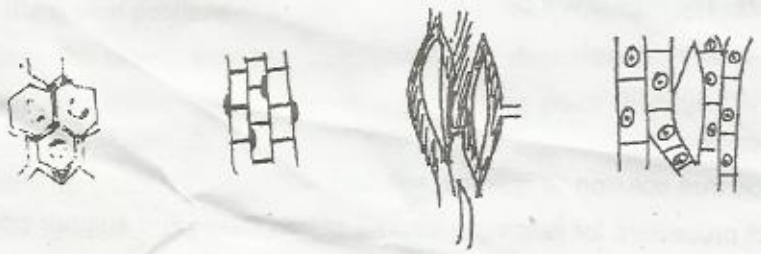
(a) long, spindle shaped and uninucleate

(b) long, cylindrical, and without nuclei

(c) long, cylindrical, and multinucleate

(d) cylindrical, branched and uninucleate.

29. Students observed the following tissues under the microscope. Which one of the tissues is dead, without living cytoplasm and nucleus :



I II III IV

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

30. A student took x gram water in a beaker and dipped p gram of raisins in it. After keeping raisins in water for about 2 hours he measured the mass of soaked raisins as q grams. He also measured the mass of water absorbed from the beaker which was y grams. On the basis of his observations the percentage of water absorbed by raisins would be :

(a) $\frac{(y-x)g}{xg} \times 100$ (b) $\frac{(y-x)g}{yg} \times 100$

(c) $\frac{(q-p)g}{qg} \times 100$ (d) $\frac{(q-p)g}{pg} \times 100$

31. A beaker contains 50 g of ice and water mixture. The temperature of this mixture is :

(a) less than 0°C (b) 0°C

(c) more than 0°C (d) 4°C

32. In order to find the boiling point of water one of the precautions is that the bulb of the thermometer should not touch the sides of the beaker. This precaution is taken because :

(a) sides of the beaker are at slightly higher temperature than 100°C.

(b) sides of the beaker are at slightly lower temperature than 100°C.

(c) the bulb of thermometer is likely to break.

(d) none of the above.

33. The correct sequence of steps taken for separating the mixture of ammonium chloride, sand and common salt is :

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

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

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

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

34. A student was asked to prepare a true solution of sugar in water. By chance, he added sugar in excess. He stirred for quite sometime but some of it settled down. He filtered the contents. The filtrate will be

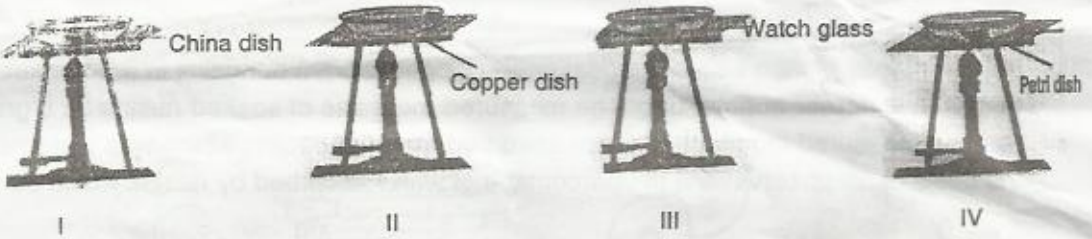
(a) True solution

(b) Colloidal solution

(c) Suspension

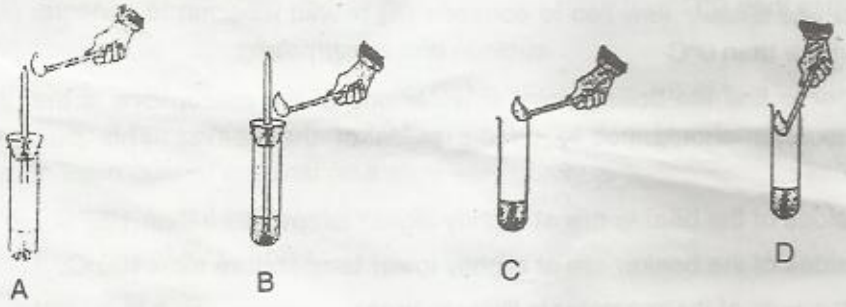
(d) Can be true solution or colloidal solution.

35. The correct procedure for heating a mixture of iron filings and sulphur powder is :



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

36. Ankur was doing an experiment to carry out the reaction of zinc granules with dil. sulphuric acid. He observed that a gas is being evolved. The safest method to detect whether the gas produced in the reaction is hydrogen is :



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

37. When a magnet is moved repeatedly through a mixture of iron fillings and sulphur powder, the observation which is correct is :

(a) Iron fillings will stick to the magnet

(b) A black mass of iron sulphide will be produced.

(c) Sulphur powder will be left in a tray.

(d) Both (a) and (c)

38. While determining the melting point of ice Karan used a glass stirrer. The purpose of using glass stirrer is to :

(a) help the fusion process (b) keep the temperature uniform

(c) increase the kinetic energy (d) decrease the kinetic energy

39. While doing an experiment to determine the boiling point of water, when water starts boiling its temperature :

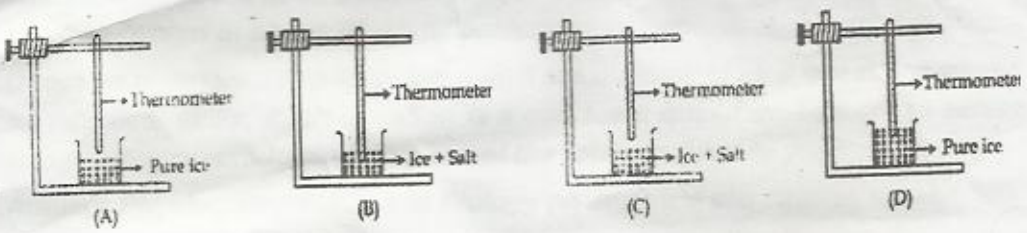
(a) remains constant

(b) first decreases and then increases

(c) keeps on increasing as long as heating is continued

(d) may decrease or increase depending on the place where the experiment is being carried out.

40. Which of the following is the correct method of finding the melting point of ice ?



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

41. Four spring balances are provided to find the minimum force required to just move a rectangular wooden block lying on a wooden surface. Range and least count of four spring balances are given below. Which of the following spring balance will you select?

(a) Range 0-100 gwt and least count of 10 gwt

(b) Range 0-10 gwt and least count of 1 gwt

(c) Range 0-10 gwt and least count of 2 gwt

(d) Range 0-100 gwt and least count of 1 gwt.

42. In an experiment to establish relationship between weight of a rectangular block lying on a horizontal wooden table and a minimum force required to move it. A spring balance is provided. The least count of the given spring balance is

(a) 1 gwt
(b) 2 gwt
(c) 5 gwt
(d) 3 gwt