7. Motion of the moon around the earth is along a circular path. Name the force which is responsible for this motion. What provides this force to the moon ? What will happen if suddenly this force disappears ? 2

8. Give two examples of such crop yields which are source of carbohydrate, protein and fat respectively. 3

9. Differentiate between micronutrients and macronutrients. Give one example of each. How does the deficiency of these nutrients affect plants ? 3

10. Neena took some ammonium chloride in a china dish and put an inverted funnel with a cotton plug on its stem. She then heated it slowly : 3

(a) What would she observe ?

(b) Name and define the phenomenon that takes place.

(c) Name any two other substances with which she can make similar observation.

11. List any four properties of solution. Give any two examples of solid in liquid solutions. 3

12. Two beakers A and B contain plain water and concentrated sugar solution respectively. Equal number of dried raisins are kept in them for a few hours and them taken out. 3

(i) Explain the reason for the difference in the physical appearance of raisins which were taken out of the two beakers

(ii) On the basis of above observation, categories the two solutions as hypotonic and hypertonic

13. (a) Mention any two characteristics and two functions of parenchyma tissue in a plant. 3

(b) Draw the labelled diagram of transverse section of parenchyma tissue

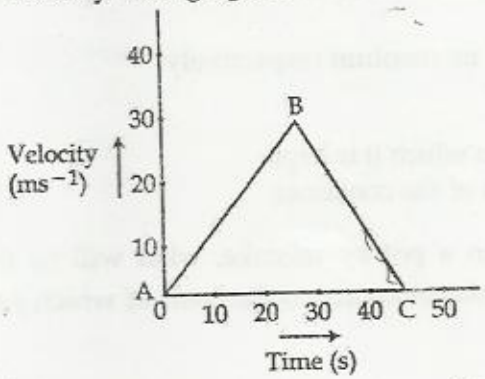
14. Give reasons for the following : 3

(a) Bark of a tree is impervious to gases and water

(b) In desert plants, epidermis has a thick waxy coating

(c) Epidermal cells of the roots generally have hair like parts

15. Velocity-time graph of a car is shown by the figure given below : 3



(a) State the kind of motion of the car as represented by AB and BC.

(b) Identify the part which represents motion of the car with positive acceleration. Give reason for your answer.

(c) Identify the part which represents motion of the car with negative acceleration. Give reason for your answer.

16. (a) Give reason for the following : 3

(i) Fastening of seat belts is advised for the safety of persons sitting in a moving car.

(ii) When a vehicle makes a sharp turn at high speed we tend to get thrown to one side.

(b) State Newton's First law of motion.

17. (a) Mention the two factors essential for specifying momentum of an object 3

(b) Which would require a greater force - accelerating a body of mass 0.4 kg at 6 ms^{-2} or a body of mass 1 kg at 2.5 ms^{-2} ?

18. (a) How does the magnitude of the force of gravitation between two objects change when : 3

(i) mass of one of the objects is halved

(ii) distance between the two objects is halved

(b) Mention any two phenomena which can be successfully explained by Universal law of Gravitation.

19. (a) Define weight of a body. Mention the direction in which it acts. 3

(b) A stone is thrown vertically upward with an initial velocity of 40 ms^{-1}. Find the maximum height reached by the stone. What is the net displacement and the total distance covered by the stone ? (Given g = $10ms^{-2}$)

20. (a) 'Removal of weeds from the cultivated fields during the early stages of crop growth is essential for good harvest.' 5

(i) What are weeds ? Give one example.

(ii) List any two reasons due to which it is essential to remove them during early stage of crop growth

(iii) Mention any two methods by which weed growth can be controlled

(b) Apart from weeds, mention two other biotic factors that may adversely affect crops and briefly state how these affect crop yield.

OR

(a) Farmer A wants to grow fodder crops while farmer B wants to grow cereals. Mention the agronomic characteristics which the two farmer would desire in their respective crops.

(b) List any four other factors for which variety improvement is done.

(c) Name and define the process of incorporating desirable characteristics into crops.

21. (a) Describe an activity with diagram to illustrate that no change in temperature takes place when a liquid converts into vapour. 5

(b) Mention any two differences between evaporation and boiling.

OR

(a) State reasons for the following :

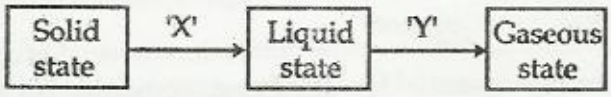
(i) It is easy to take sips of hot tea from a saucer rather than from a cup.

(ii) Washed clothes dry up more quickly when we spread them out.

(iii) It is more dangerous to get burnt by steam instead of boiling water.

(b) (i) Mention the melting point of ice in and boiling point of water in Kelvin scale

(ii) Study the flow chart given below and mention the suitable terms used for heat absorbed 'X', 'Y' during change of state shown here :



22. (a) Compare in a tabular form the properties of a solution and suspension in respect of : 5

Composition, size of particles, stability

(b) Identify the dispersing medium and dispersed phase in the following colloids :

Cheese, rubber, fog, face cream.

OR

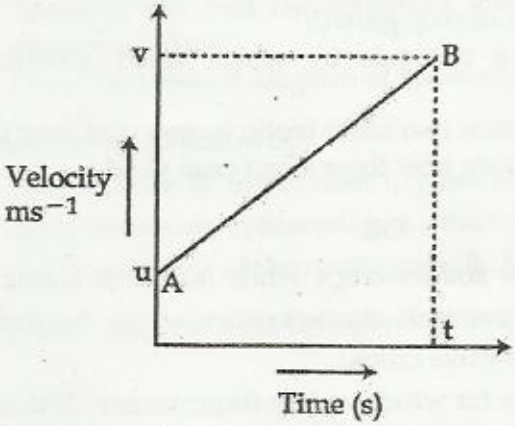
(a) Fat content in double toned milk available in polypacks is less than that in toned milk. Name the process by which this is done. State the principle of this process and also mention its three applications.

(b) What type of mixtures can be separated by :

(i) using a separating funnel

(ii) fractional distillation

23. (a) A car starting with a velocity 'u' and uniform acceleration 'a' attains a velocity 'v' in time 't'. Its velocity-time graph is given below with the help of this graph establish a relation between v, u and t. 5



(b) Brakes applied to a car produce an acceleration of $5ms^{-2}$ in a direction opposite to motion. If the car takes 5s to stop after the application of brakes, calculate the distance travelled by car in this time.

OR

(a) Identify in the situations given below where the object is making a uniform circular motion :

(i) A car turning around a curve with uniform speed

(ii) A car going uphill

(iii) Motion given to a discus by an athlete before releasing it

(iv) Motion of discus when athlete releases it.

Give reason for your answer

(b) A cyclist completes 5 rounds of a circular track of radius 21 m in 12 minutes calculate his speed

(c) An artificial satellite moves around the earth with a velocity of constant magnitude still its motion is said to be an accelerated motion. Why ?

24. (a) "First law of motion can be mathematically stated from the mathematical formulation of second law of motion." Justify this statement. 5

(b) A dumb-bell of mass 10 kg falls on the floor from a height of 80 cm. Calculate the change in momentum of the dumb-bell and also the force of impact on the floor. (given $g = 10\ ms^{-2}$)

OR

(a) Give reason for the following :

(i) When a person jumps from a boat to the shore, the boat moves backwards.

(ii) When a person fires a gun, he experiences a jerk in backward direction.

(b) State Newtons third law of motion

(c) An object of mass 20 kg is accelerated uniformly from a velocity of 36 KMh^{-1} to 54 kmh^{-1} in 25s. Calculate the initial and final momentum of the object. Also find the magnitude of force exerted on the object.

SECTION - B

25. Food samples taken by four students A, B, C, D to test the presence of starch are as : 1

(A) grape juice

(B) lemon juice

(C) soup of mixed pulses

(D) Rice extract (Maand)

The student who will be able to obtain positive result is :

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

26. Sunil tested for the presence of metanil yellow in the given sample of dal. He took 5g dal in 5mL of water in a test tube and added 2 drops of conc. Hydrochloric acid to the test tube. He reached to the conclusion that dal is adulterated with metanil yellow because the colour of solution became : 1

(a) maganta (b) green (c) blue (d) black

27. To determine the melting point of ice three students A, B, C arranged their respective experimental set ups. A took big cubes of ice, student B took well crushed ice and student C took a mixture of crushed ice and salt. Correct melting point can be determined by student : 1

(a) A only (b) B only

(c) C only (d) All the three

28. In an experiment to determine the boiling point of water, the stop watch used to note down the temperature of water at different intervals of time has 20 divisions between 0 to 10 s. marks. The least count of the stopwatch is : 1

(a) 1 s (b) 0.1 s (c) 0.05 s (d) 0.5 s

29. Students were asked to select the necessary apparatus out of the following items to separate the components of a mixture containing sand, ammonium chloride and common salt : 1

Beaker, conical flask, filter paper, test tube, watch glass, china dish, funnel cotton plug, tripod stand, round bottomed flask.

Correct selection would be :

(a) test tube, china dish, a tripod stand, beaker, watch glass, cotton plug
(b) china dish, beaker, funnel, filter paper, cotton plug, tripod stand
(c) funnel, filter paper, china dish, beaker, tripod stand, watch glass
(d) china dish, beaker, funnel, cotton plug, tripod stand, watch glass

30. Dipti was asked to prepare three separate mixtures in three beakers A, B, C by mixing sugar, fine sand and starch respectively in water and then categories each as stable or unstable correct categorization would be : 1

(a) A and B are stable and C is unstable
(b) B and C are unstable and A is stable
(c) A and C are unstable and B is stable
(d) B and C are stable and A is unstable

31. In china dish A iron filings and sulphur powder were mixed together, while in china dish B mixture of iron filings and sulphur powder was heated strongly till red hot. Students were asked to note their observation about the appearance of contents in china dish A and B correct observation would be : 1

(a) It is homogeneous in both dishes
(b) It is heterogeneous in both dishes
(c) It is homogeneous in A and heterogeneous in B
(d) It is heterogeneous in A and homogeneous in B

32. When a magnesium ribbon is burnt the colour of the residue is : 1

(a) light grey (b) black (c) white (d) brown

33. To prepare a compound from iron filings and sulphur powder, the two are mixed and then : 1

(a) dissolved in carbon disulphide in a beaker
(b) crushed together into fine powder in a mortar
(c) heated together in a china dish
(d) dissolved in boiling water in a beaker

34. When dilute sulphuric acid is added to zinc granules, the gas produced is : 1

(a) hydrogen (b) sulphur dioxide
(c) oxygen (d) hydrogen sulphide

35. Safranine is a reagent that is used to stain : 1

(a) nucleus (b) cytoplasm
(c) plasma membrane (d) cell wall

36. Coverslip is put on the mounted material on a slide very gently to : 1
(a) avoid the crushing of mounted material
(b) avoid the entry of air bubbles
(c) avoid oozing of stain
(d) avoid oozing of glycerin

37. The outermost layer of human cheek cell is : 1
(a) cell wall
(b) nuclear membrane
(c) plasma membrane
(d) cytoplasm

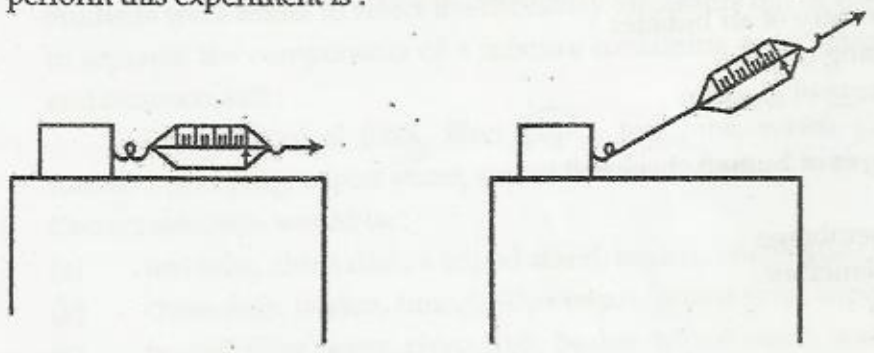
38. After observing the slides of striped muscle fibres, students were asked to write the characteristics of striated muscles. Correct observation would be that the cells of these tissues are : 1
(a) multinucleate and unbranched
(b) uninucleate and spindle shaped
(c) uninucleate and branched
(d) multinucleate and branched

39. In transverse section parenchyma cells show : 1
(a) thickening of walls due to deposition of lignin
(b) dead cells
(c) living cells with thin walls and intercellular spaces
(d) absence of intercellular spaces and vacuoles

40. During the experiment "to determine the percentage of water absorbed by raisins", the raisins are wiped before weighing. This is to ensure that : 1
(a) hands do not get wet
(b) the raisins lose excess water before weighing
(c) the weighing scales do not get wet
(d) only water absorbed by raisins is weighed

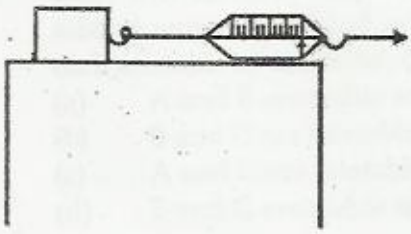
41. The spring balance used for measuring minimum force required to just move a wooden block has 20 divisions between 0 – 10 gwt mark on its scale, when the block is pulled by it by gradually increasing the force, it just starts moving when the pointer reaches 65th mark.. The force with which the block just starts moving is : 1
(a) 32.5 gwt (b) 325 gwt
(c) 3.25 gwt (d) 65 gwt

42. Umesh wants to measure minimum force required to just move a wooden block on a horizontal surface with the help of a spring balance. The correct way to perform this experiment is : 1

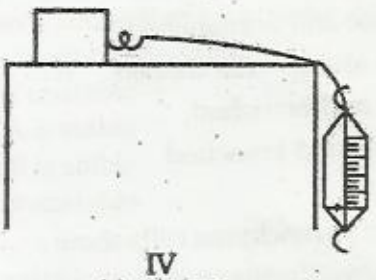


I

II



III



IV

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

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