



SCIENCE

Paper-7

Time allowed: 3 hours

maximum Marks: 90

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 to section A and all questions of section B are to be attempted separately.
5. Question numbers 1 to 3 in section A are one mark questions. These are to be answered in one word or one sentence.
6. Question numbers 4 to 7 are two mark questions, to be answered in about 30 words.
7. Question number 8 to 19 is three mark questions, to be answered in about 50 words.
8. Question number 20 to 24 are five mark questions, to be answered in about 70 words.
9. 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 choosing one most appropriate response out of the four provided to you.

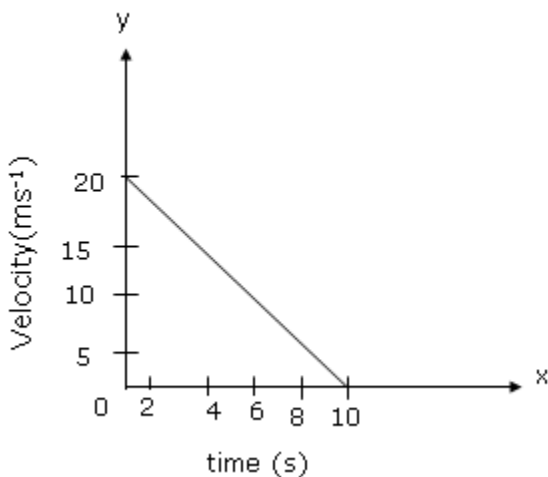
SECTION A

1. What would be the consequences if there were no unbalanced forces? [1]
2. At what temperature, solid ice and liquid water coexist together? [1]
3. Where do the lipids and proteins constituting the cell membrane get synthesised? [1]
4. (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?
5. List any two characteristics of pure substance. [2]
6. Write any two features of cardiac muscles. [2]
7. List any two differences between prokaryotic cell and eukaryotic cell. [2]
8. (a) A particle is moving in a circle of diameter 5 m. What is its displacement when it completes $1\frac{1}{2}$ revolution? [3]



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- (b) On a 120 km track, a train travels the first 30 km at a uniform speed of 30 km/h. Calculate the speed with which the train should move rest of the track so as to get the average speed of 60 km/h for the entire trip?
9. (a) Why are road accidents at high speed very much worse than accidents at low speed? [3]
 (b) Which law of motion is involved in the working of a jet plane.
 (c) Name the physical quantity whose unit is:
 (i) kgms^{-2} and (ii) $\text{Nm}^2 \text{kg}^{-2}$
10. The velocity time graph of a ball of mass 20 g moving along a straight line on a level ground is given below. How much force does the ground exert on the ball to bring it to rest? [3]



11. A solid body of density 5000 kg/m^3 weights 5 N in air. It is completely immersed in water of density 1000 kg/m^3 . [3]
 (i) Calculate the apparent weight of the solid in water.
 (ii) What would happen to the body if water is replaced by a liquid of density 8000 kg/m^3 (Take $g = 10 \text{ m/s}^2$).
12. Consider two objects X and Y of masses M and m respectively separated by a distance d. If the mass of the object A is tripled, then calculate the force of gravitation between them. [3]
13. (a) In which of the following substances you expect strongest and in which weakest intermolecular forces: sugar, sodium chloride, water, carbon dioxide, alcohol.
 (b) Carbon dioxide gas is heavier than both nitrogen and oxygen. Why does not it form lower layer in the atmosphere? [3 marks]
14. (a) How will you test whether a given solution is a true solution or colloidal solution?
 (b) What is the effect of temperature on the solubility of gases in liquids? [3 marks]
15. Which cell organelles are called the power houses of the cell and why? Why ATP is called energy currency of the cell? [3]
16. Write any three advantages of mixed cropping. [3]
17. What is areolar tissue and where is it found? Give its two functions. [3]



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18. (a) What are the desirable characters of the varieties suitable for honey production?

(b) Give one disadvantage of using fertilizers. [3]

19. (a) Why is it said that "Functional combination of nerve and muscles tissue is fundamental to most animals."

(b) What is the significance of nerve impulse?

[3]

20. (a) If the mass of a body is doubled, what happens to its acceleration when acted upon by the same force? [5]

(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?

OR

(a) What happens to a person traveling 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 gun of mass 100 kg. If the speed of the bullet is 80 ms^{-1} . Calculate the recoil speed of the gun?

21.. (a) Train starting from rest attains a velocity of 70 km/h in 10 minutes. Assuming that the acceleration is uniform, find the acceleration and the distance [3] travelled by the train while it attained this velocity.

(b) How can the velocity of a particle be changed? [2]

OR

(a) A ball is gently dropped from a height of 20 m. If its velocity increases uniformly at a rate of 10 m/s^2 , with what velocity will it strike the ground? After what time will it strike the ground? [3]

(b) Suppose you are running around a football court 100 m long and 50 m wide. What will be more the distance covered by you or your displacement at the end of one round? [2]

22 (a) Classify the following into elements, compound and mixture: Coal, Aluminium, sugar, graphite, sugar solution and methane.

(b) What happened when a hot saturated solution is cooled?

(c) How is an emulsion different from a gel? [5 marks]



OR

(a) What types of mixtures can be separated by technique known as crystallization? Give two examples of mixtures which can be separated by this technique.

(b) Colloidal solution show Tyndall effect but true solutions do not. Explain, why

(c) Name two metals which are both malleable and ductile. [5 marks]

23 (a) With the help of an activity show that air contains water vapours.

(b) How will you justify that ice, water and steam are not different substances but different states of the same substances?

(c) Ice at 273 K causes more cooling than water at the same temperature. Explain.

[5 marks]

OR

(a) What do you understand by "latent heat of vaporization ".What is its value of water.

(b) Explain, why a cooler is quite effective on a hot and dry day.

(c) Kelvin scale of temperature is regarded as better than the Celsius scale. Assign reason [5 marks]

24

(a) What management practices are common in dairy and poultry farming?
 (b) Explain why inspite of large population of cattle in our country, milk production is meager?

(c) Why even excessive application of manure does not cause pollution?

Or

(a) What is composting? How is it different from vermicomposting?

(b) Why should biological control methods be preferred for protecting crops?

(c) Name any two oil seeds which provide us with necessary fats? [5]

SECTION B

25. . Mass readings given by spring balances when multiplied by g gives



- (a) Weight of the body
- (b) Momentum of the body
- (c) Energy of the body

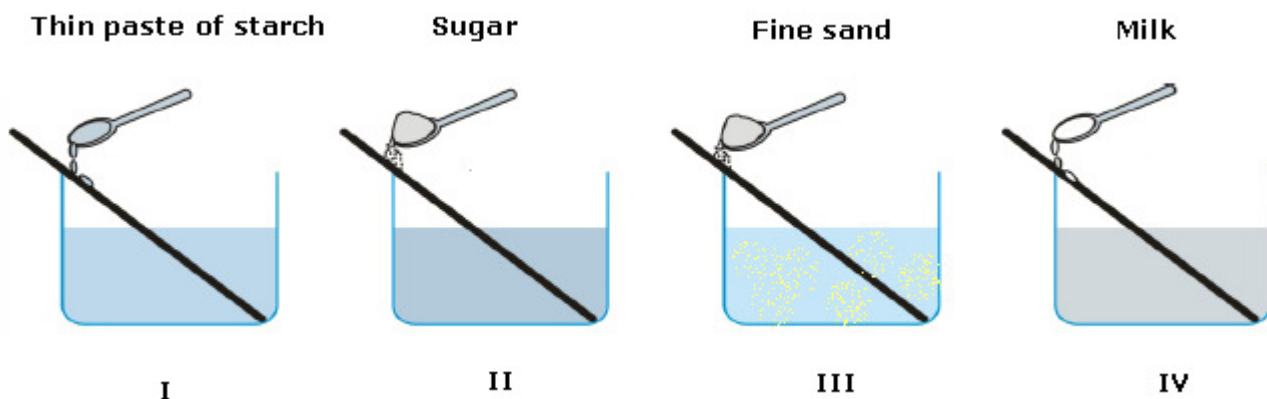
[1]

26. 1gwt. as measured by spring balance corresponds to what force by external agency on the spring balance?

- (a) 981 dynes
- (b) 981 newton
- (c) 9.8 newton
- (d) 1 dyne

[1]

27. Following substances were added to water in beakers shown below. Each mixture is stirred well. A suspension is formed in which of the following beakers?



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

28. Take three test tubes A, B and C containing salt solution, egg albumin in water and suspension of sand in water. Paste small strips of colored cellophane paper on one side of each test tube. Observe the colored paper from the other side of the test tube through the liquid one by one. Identify the correct observation out of the following.

- a) Coloured spot is visible in A, appears dim in B, not visible in C
- b) Coloured spot is not visible in A, appears dim in B, visible in C
- c) Coloured spot is visible in A, not visible in B, appears dim in C
- d) Coloured spot is not visible in A, appears dim in B, not visible in C

29. Which one of the following is not a correct observation when a magnet is moved repeatedly through a mixture of iron filings and sulphur powder kept in a tray?

- a) Most of the iron filings cling to the magnet
- b) A black mass of iron sulphide is produced



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- c) Sulphur powder is not attracted to magnet
- d) Sulphur powder remains in the tray

30. When CuSO_4 react with Fe, it produces

- a) FeSO_4
- b) Fe
- c) $\text{Fe}_2(\text{SO}_4)_3$
- d) FeS

31. Measurement of heat is called:

- a) Hygrometry
- b) Thermometry
- c) Calorimetry
- d) Photometry

32. In the experiment to determine boiling point of water, what substance is added to avoid bumping?

- a) Sand
- b) Chalk pieces
- c) Pumice stone
- d) Salt

33. A mixture of salt, sand and water is given to the students. Students will adopt the following method to separate the components:

- a) Sedimentation and decantation
- b) Distillation
- c) Filtration
- d) Centrifugation

34. How would you separate sugar from a mixture of water?

- a) By distillation
- b) By filtration
- c) By chromatography
- d) By fractional distillation

35. When magnesium is burnt in air, a white ash remains as left over. What is it?

- a) MgO_2
- b) MgO
- c) Mg
- d) Mg_3O

36. In the laboratory, carbon disulphide is used as solvent to separate a mixture of iron filings and sulphur powder. What precaution has to be taken with carbon disulphide?

- a) Keep away from flame
- b) Keep away from water



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- c) Keep away from iron sulphide
- d) Keep away from air

37. The test tubes A, B and C are taken with food samples of dal, mustard and rice respectively in powdered form. On adding iodine solution the blue black colour is observed in
[1]
(a) Test tube A
(b) Test tube B
(c) Test tube C
(d) None of these test tubes
- 38.. To given three food samples in test tubes A, B and C, reagent HCl is added and solution in B turned to pink colour. So, B confirmed the presence of
[1]
(a) Starch
(b) Fat
(c) Metanil yellow
(d) Protein
39. Animal cells are commonly stained with:
[1]
(a) methylene blue
(b) acetocarmine
(c) safranin
(d) iodine solution
40. In the preparation of temporary mount of onion peel which of the following is not used:
[1]
(a) water
(b) glycerine
(c) safranin
(d) alcohol
41. If you shown two slides of plant tissues – parenchyma and sclerenchyma, you can identify sclerenchyma by the:
[1]
(a) Location of nucleus
(b) Thickness of cell wall
(c) Size of the cells
(d) Position of vacuoles
42. A student observed a permanent slide. On observation he found striations but no cell wall. From this it may be concluded that the given slide is of:
[1]
(a) Striated muscles
(b) Non – striated muscles
(c) Neuron
(d) Cardiac muscles

