Sub: Science,   **Time: 3.15 hours**   **Total marks : 80**
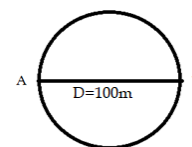
PART : A PHYSICS

I. Choose the correct alternative   **3 x 1 = 3**

1. An athlete completes one round of a circular track of diameter 100 m in 30 s. Displacement at the end of 2 min. is,

   A) 100m   B) 200m   C) 0   D) 50m

2. The momentum of a body of mass m and moving with velocity v is given by,

   A) $(mv)^2$ B) mv^2 C) $\frac{1}{2} mv^2$ D) mv

3. The SI unit of pressure is,

   A) Joules   B) Pascal   C) Calorie   D) Celsius

II Answer the following   **2x1=2**

4. State Newton's third law of motion.

5. Why does an object float or sink when placed on the surface of water?

III Answer the following questions.   **3 x 2 = 6**

6. Distinguish between speed and velocity.

7. A motorboat starting from rest on a lake accelerates in a straight line at a constant rate of 3.0 ms⁻² for 8 s. How far does the boat travel during this time?

8. Why is it difficult to hold a school bag having a strap made of a thin and strong string?

IV Answer the following   **3x3=9**

9. What are the differences between the mass of an object and its weight?

10. (a) Which of the following has more inertia? Give reason for your choice.
    -a rubber ball and a stone of the same size.
    (b) Define inertia

OR

    (a) Explain why some of the leaves may get detached from a tree if we vigorously shake its branch.
    (b) Define the law which helps to give explanation to the above situation.

11. State the universal law of gravitation. What are the importance's of universal law of gravitation?

12. A truck starts from rest and rolls down a hill with a constant acceleration. It travels a distance of 400 m in 20 s. Find its acceleration. Find the force acting on it if its mass is 7 tonnes

OR

A stone of 1 kg is thrown with a velocity of 20 ms^{-1} across the frozen surface of a lake and comes to rest after travelling a distance of 50 m. What is the force of friction between the stone and the ice?

13. Plot a velocity-time graph for the following data and identify the type of acceleration based on the nature of the graph. Give reason for your answer.

Time in (S)	Velocity in (ms^{-1})
0	5
10	8
20	6
30	10
40	5

PART : B   CHEMISTRY

14. Physical state of water at 110°C

  (A) Solid   (B) Liquid and gas   (C) Liquid   (D) Gas

15. A change of state directly from solid to gas without changing into liquid state (or vice versa) is called

   (A) sublimation   (B) fusion,   (C) condensation   (D) evaporation

16. Technique used to separate butter from curd

      (A) crystallisation   (B) distillation
      (C) Centrifugation   (D) evaporation

17. Draw the diagram of the arrangement of the apparatus showing conversion of ice in to water.

18. How do we perceive the smell of perfume even though we are sitting far away? Give reason.

19. Write two applications of chromatography.

20. How does the water kept in an earthen pot (matka) become cool during summer?

OR

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

21. Mix some milk and water in beaker 'A' and take some salt water solution in beaker 'B'. Using a torch, pass light through the mixtures.
    a) In which beaker do you observe the path of light? Why?
    b) What is this effect called?
22. Identify the solute and solvent in the given solutions.
    a) Tincture of Iodine,   b) Soda water

IX. Answer the following questions. 3 x 3 = 9
23. Tabulate the differences in the characteristics of states of matter.

OR

Give reason:
   a) our palm feel cold when we put some acetone or petrol or perfume on it.
   b) we should wear cotton clothes during summer.
   c) A wooden table should be called a solid.
24. Draw the diagram of arrangement of apparatus used to separate a mixture of cooking oil and water and label the following parts.
       a) kerosene   b) stopcock
25. Classify the following into elements, compounds and mixtures.
   (a) Sodium   (b) Soil   (c) Sugar solution
   (d) Silver   (e) Calcium carbonate   (f) Tin

X. Answer the following question. 1 x 4 = 4
26. a) Classify each of the following as a homogeneous or heterogeneous mixture.
        soda water, wood, air, soil, vinegar, filtered tea.
    b) List the points of differences between homogeneous and heterogeneous mixtures.

PART : C   BIOLOGY

XI. Choose the correct alternative 2 x 1 = 2
27. The passage of water from a region of high water concentration through a semi-permeable membrane to a region of low water concentration is called,
    A) diffusion   B) osmosis   C) fusion   D) active transportation
28. Tissue that connects muscle to bone in humans
     A) tendons   B) adipose   C) blood   D) ligaments

XII. Answer the following questions. 3x 1 = 3
29. Why are lysosomes known as suicide bags?
30. What are macro-nutrients ?
31. Define tissue.

XIII. Answer the following questions. 2 x 2 = 4
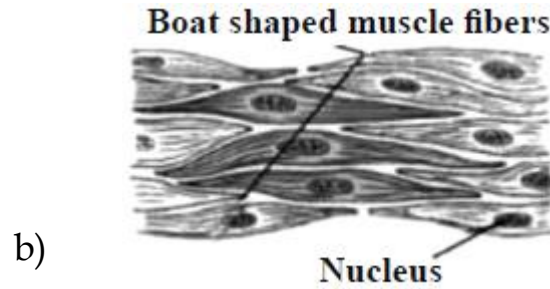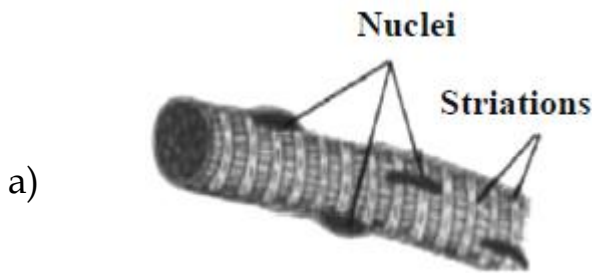32. Which organelle is known as the powerhouse of the cell? Why?

OR

   How does an Amoeba obtain its food? Explain
33. What are the benefits of cattle farming?

34. Identify the images of tissue types given below and write how they differ in structure.

a)

b)

Boat shaped muscle fibers

35. Compare the use of manure and fertilizers in maintaining soil fertility.

<div align="center">OR</div>

How do you differentiate between capture fishing, marine culture, and aquaculture?

36. What are the advantages of inter-cropping and crop rotation?

<div align="center">OR</div>

How are the fish obtained? What are the advantages of composite fish culture?

XV . Answer the following question.   **1 x 4 = 4**

37. Draw the diagram showing the structure of animal cell and label the following parts.

    i) cell membrane   ii) nucleus

XVI . Answer the following question.   **1 x 5 = 5**

38. How are simple tissues different from complex tissues in plants? Name types of simple tissues. Differentiate between types of simple tissues on the basis of their cell wall.