

Time : 3 Hrs.

M.M.: 90

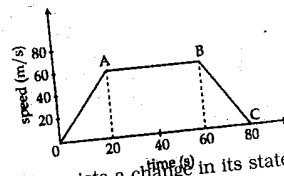
**General Instructions :**

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 five questions of five marks category. Only one option in such questions is to be attempted.**
4. **All questions of Section A and all questions of Section B are to be attempted separately.**
5. **Questions 1 to 3 in Section A are one mark questions. These are to be answered in one word or in one sentence.**
6. **Questions 4 to 7 in Section A are two marks questions. These are to be answered in about 30 words each.**
7. **Questions 8 to 19 in Section A are three marks questions. These are to be answered in about 50 words each.**
8. **Questions 20 to 24 in Section A are five marks questions. These are to be answered in about 70 words each.**
9. **Questions 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.**

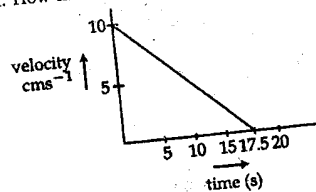
**SECTION-A**

- Q1. Write the boiling point and freezing point of water in Kelvin scale. (1)
- Q2. Name the kind of plastid which is important for photosynthesis in leaves of the plants. (1)
- Q3. Raju is having three solid blocks of same size and shape made up of steel, wood and plastic. Which one of these will have highest inertia? Give reason for your choice. (1)
- Q4. Mention two properties of water to justify that water is a liquid at room temperature. (2)
- Q5. State the condition for using the method of centrifugation to separate contents of a mixture. State the principle involved in this process. (2)
- Q6. List two characteristics of cork. Name the chemical present in them and mention its role. (2)
- Q7. State any four natural phenomenon explained by universal law of Gravitation. (2)

- Q8. (a) Differentiate between compost and vermicompost. (3)  
 (b) Mention the long term benefits of using manure in crop production. (3)
- Q9. A farmer wants to store his agricultural produce. List all the factors that he should check before storing it. Mention the control measures that he should take. (3)
- Q10. Explain the following : (3)  
 (a) Gases exert pressure on the walls of the container.  
 (b) Evaporation causes cooling.
- Q11. (a) Identify solute and solvent in the following solution : (3)  
 (i) Aerated drinks (ii) lemonade  
 (b) Mention two applications of chromatography. (3)
- Q12. Draw a neat diagram of plant cell and label any four parts. (3)
- Q13. Explain in brief any three roles of epidermis in plants. (3)
- Q14. Draw a neat diagram of neuron and label on it the following parts : (3)  
 Nucleus, Dendrite, Axon, Cell body
- Q15. Study the speed time graph of a car along side and answer the following questions : (3)



- (a) What type of motion is represented by OA? (3)  
 (b) Find acceleration from B to C. (3)  
 (c) Calculate the distance covered by the body from A to B. (3)
- Q16. (a) Name the property by virtue of which a body resists a change in its state of motion, or of rest. (3)  
 (b) The velocity-time graph of a ball of mass 15g moving along a straight line on a table is given. How much force does the table exert on the ball to bring it to rest? (3)



- Q17. (a) Define momentum and write its S.I. unit. (3)  
 (b) Two bodies of mass  $m_1$  and  $m_2$  moving with velocities  $u_1$  and  $u_2$  respectively collide with each other and then continue to move with velocities  $v_1$  and  $v_2$  respectively. Express the above situation in the form of equation in accordance of law of conservation of momentum. (3)  
 (c) State law of conservation of momentum. (D-2)

- Q18. (a) Seema buys few grains of gold at the poles as per the instructions of one of her friends. She hands over the same when she meets her at the equator. Will the friend agree with the weight of gold bought? If not, why? (3)  
 (b) If the moon attracts the earth, why does the earth not move towards the moon? (3)
- Q19. Determine the magnitude of the gravitational force between a planet of mass  $6 \times 10^{24}$  kg and a 1 kg object on its surface. Let the radius of the planet be  $6 \times 10^6$  m.  $G = 6.67 \times 10^{-11} \text{ Nm}^2 \text{ kg}^{-2}$ . (3)
- Q20. (a) Define lactation period. Name two breeds of cattle which are selected for cross-breeding due to their long lactation period. Why are they crossed with local breeds? (3)  
 (b) Differentiate between roughage and concentrates? (5)

OR

An Italian bee variety *A. mellifera* has been introduced in India for honey production. Write about its four merits over other varieties. List two local varieties of Indian bee used for honey production. What is pasturage and how is it related to honey production?

- Q21. (a) Archit dropped a crystal of potassium permanganate into two beakers A and B containing hot water and cold water respectively. After keeping the beakers undisturbed for some time what did he observe and why? (5)  
 (b) For any substance, why does the temperature remain constant during the change of state?  
 (c) What types of clothes should we wear in summer and why? (5)
- OR
- (a)  $\text{CO}_2$  is a gas. Write two gaseous properties to justify it.  
 (b) How can we liquefy a gas?  
 (c) Solid  $\text{CO}_2$  is also known as dry ice. Why?  
 (d) Write the full form of :  
 (i) CNG (ii) LPG

- Q22. With a neat labelled diagram to explain the process used for separating two immiscible liquids with the help of an example. State the principle of this method. (5)

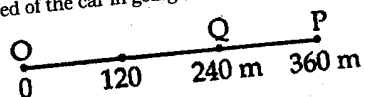
OR

With a neat labelled diagram to explain the process used for separating acetone and water from their mixture. List two criterion that must be fulfilled for using this process.

- Q23. (a) Differentiate between average velocity and average speed. (2 points)

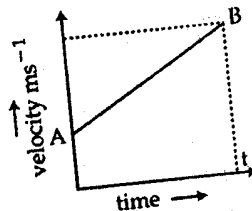
(D-3)

- (b) A car is moving along a straight line OP as shown below. It moves from O to P in 18 s and returns from P to Q in 6 s. What are the average velocity and average speed of the car in going (i) from O to P (ii) from O to P and back to Q. (5)



OR

- (a) Draw shapes of distance-time graph for :  
 (i) non-uniform motion  
 (ii) uniform motion of a moving body
- (b) Initial velocity of an object is 'u'. Moving with uniform acceleration 'a' it covers a distance 's' in time 't' and attains a final velocity 'v'. Its velocity-time graph is given below. With its help derive the relation between velocity and position of the object.



- Q24. (a) State Newton's first and third law of motion.  
 (b) An object of mass 50 kg is accelerated uniformly from a velocity of 2 m/s to 6 m/s in 10 s. Calculate the initial and final momentum of the object and the force acting on it. (5)

OR

- (a) Define force.  
 (b) Derive an expression for calculation of force.  
 (c) Explain how a karate player is able to break a pile by a single blow. (1)

**SECTION-B**

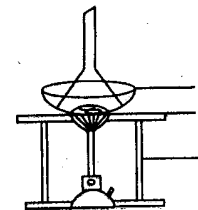
- Q25. The food sample ideal for starch test is :  
 (a) Sugar  
 (b) Rice  
 (c) Mustard  
 (d) Pulses
- Q26. In a school laboratory most commonly used chemical to test the presence of metanil yellow in dal is :  
 (a) Iodine solution  
 (b) Conc. HCl  
 (c) Alcohol  
 (d) Safranin (1)

(D-4)

- Q27. Which one of the statements is correct for the process of melting of ice? (1)  
 (a) at melting point only ice exists  
 (b) at melting point only water exists  
 (c) at melting point both ice and water exist in equal proportion only.  
 (d) at melting point both ice and water are present and their mutual ratio goes on changing

- Q28. What is the state of water at 100°C? (1)  
 (a) solid  
 (b) vapour  
 (c) liquid  
 (d) liquid and vapour

- Q29. The respective correct labelling of 1, 2, 3 in the following diagram is : (1)



- (a) china dish, wire gauge, tripod  
 (b) china dish, tripod, wire gauge  
 (c) funnel, wire gauge, china dish  
 (d) funnel, wire gauge, tripod

- Q30. Which of the following will form a clear and transparent solution : (1)  
 (a) sand with water  
 (b) common salt with water  
 (c) starch with water  
 (d) gum with water

- Q31. When a magnet is moved repeatedly through a mixture of iron filings and sulphur powder, the observation which is correct is : (1)  
 (a) iron filings 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)

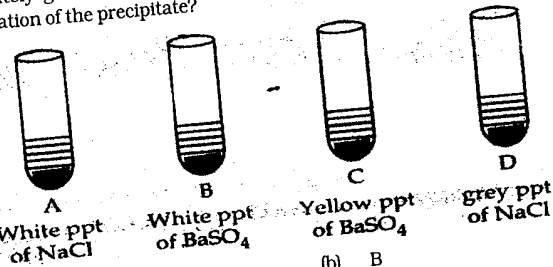
- Q32. When zinc is added in dilute sulphuric acid, taken in a boiling tube then out of the following observations which is not correct? (1)  
 (a) a colourless and odourless gas is evolved.  
 (b) lighted match stick extinguishes when brought near the mouth of tube.  
 (c) evolved gas burns with a popping sound.  
 (d) evolved gas turns lime water milky.

(D-5)

Q33. When you add carbon disulphide in a test tube containing a mixture of iron filings and sulphur powder, then what do you observe after shaking the test tube well. (1)

- (a) sulphur dissolves to form colourless solution and iron filings settle down.
- (b) some brown gas is evolved.
- (c) yellow solution is formed and iron filings settle down.
- (d) after sometime, carbon disulphide, sulphur and iron filings form three separate layers in the test tube

Q34. When solution of sodium sulphate is added to the solution of barium chloride, we immediately get a precipitate. Which of the following diagram makes correct identification of the precipitate? (1)



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

Q35. Rahul was observing an onion peel stained with safranin under a microscope. The colour of the cell wall appeared : (1)

- (a) deep blue
- (b) black
- (c) pinkish red
- (d) yellow

Q36. The cellular components not seen while observing the slide of an onion peel under a compound microscope is : (1)

- (a) chromosomes
- (b) cell wall
- (c) nucleus
- (d) cytoplasm

Q37. Given below are four operations for preparing a temporary mount of human cheek cells : (1)

- (i) take scraping from inner side of the cheek and spreading it on a clean slide.
- (ii) put a drop of glycerine on the material.
- (iii) add two or three drops of methylene blue.
- (iv) rinse the mouth with fresh water and disinfectant solution

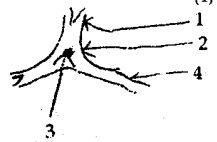
The correct sequence of operations :

- (a) (i), (ii), (iii), (iv)
- (b) (iv), (i), (iii), (ii)
- (c) (iv), (i), (ii), (iii)
- (d) (i), (iii), (ii), (iv)

(D-6)

Q38. A figure depicting parts of a neuron is given below. The correct identification of the labels 1, 2, 3, 4 respectively is : (1)

- (a) dendrite, cytoplasm, nissl granules, nerve fibre.
- (b) cilia, endoplasmic reticulum, nucleolus, nerve fibre
- (c) dendron, cell body, nissl granules, axon
- (d) dendrites, cell body, nucleus, axon



Q39. A girl was observing a slide of muscle under microscope. She identified the muscle as striated on the basis of : (1)

- (a) cells are long, cylindrical, unbranched and uninucleated
- (b) cells are long, cylindrical, branched and uninucleated
- (c) cells are long, cylindrical, unbranched and multinucleated
- (d) cells are long with pointed ends and uninucleated

Q40. A student recorded the mass of dry raisins as 4.0 g and the mass of raisins after soaking as 7 g. The percentage of water absorbed by raisins is : (1)

- (a) 20%
- (b) 10%
- (c) 75%
- (d) 40%

Q41. While performing the experiment, to establish relationship between weight of a rectangular wooden block lying on a horizontal table and a minimum force required to just move it using a spring balance. A student 'A' placed the block on its surface of maximum area and noted the value of minimum force required as 'F<sub>1</sub>' while student 'B' placed the block on its surface of minimum area and noted the value of minimum force as 'F<sub>2</sub>'. Relationship between F<sub>1</sub> and F<sub>2</sub> is: (1)

- (a) F<sub>1</sub> = F<sub>2</sub>
- (b) F<sub>1</sub> > F<sub>2</sub>
- (c) F<sub>1</sub> < F<sub>2</sub>
- (d) F<sub>1</sub> =  $\frac{1}{F_2}$

Q42. In the experiment to establish relationship between weight of a rectangular block and minimum force required to just move it by spring balance, a student measured the minimum force required as 90 gwt. for moving a wooden block of 100 gwt. Now he placed a weight of 50 gwt. on the wooden block. The minimum force required now would : (1)

- (a) increase
- (b) decrease
- (c) remains same
- (d) either decrease or increase

(D-7)