

CLASS-IX

SCIENCE

Time allowed : 3 hrs.

M.M. : 70

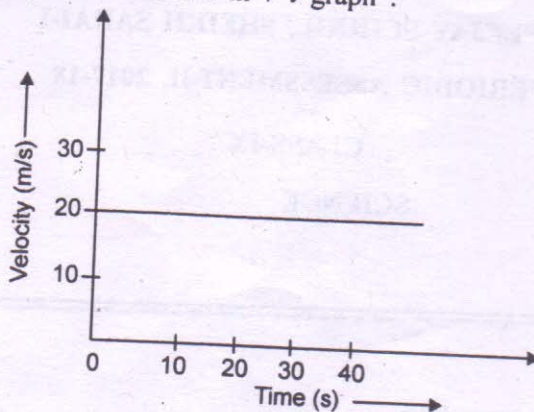
General Instructions :

1. All questions are compulsory.
2. Question numbers 1 to 5 are very short answer questions and carry 1 mark each.
3. Question numbers 6 to 17 carry 2 marks each.
4. Question numbers 18 to 29 Carry 3 marks each.
5. Question numbers 30 to 32 carry 5 marks each.
6. There is no overall choice. However, internal choice has been provided in three questions of 2 marks, three questions of 3 marks, and three questions of 5 marks. A student has to attempt only one of the alternatives in such questions.

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1. ^P Name the physical quantity denoted by the slope of the distance-time graph. (1 mark)
 2. ^C What is the physical state of water at 250°C.
 3. ^C The particle size of a substance 'X' present in water is 200 nm. What is the nature of the solution expected ?
 4. ^B Which cell organelle would you associate with elimination of old and worn out tissues ?
 5. ^B Name the two types of animal feeds. (2 marks)
 6. ^P Why does a cricket player move his hands backwards while catching a ball ?
 7. ^P Identify the action and reaction forces in the following situations :
 - (a) A person walking on the floor.
 - (b) Firing of a bullet from a gun.
 8. ^P Draw the velocity-time graph for an object moving with :
 - (a) Uniform acceleration
 - (b) Non-uniform acceleration

Or

The motion of a cyclist is shown in $v-t$ graph :



Find : (a) The acceleration

(b) The distance covered in 15 seconds.

9. ^C A diver is able to cut through water in a swimming pool. Which property of matter does this observation show ?
10. ^C Give reasons for the following observations :
- Naphthalene balls disappear with time without leaving any solid.
 - We can get the smell of a perfume sitting several metres away.
11. ^C Name the technique to separate :
- Camphor from Salt
 - Butter from Curd
12. ^C Explain why particles of a colloidal solution do not settle down when left undisturbed, while in the case of a suspension they do.
- Or**
- * A Solution contains 40 g of common salt in 320 g of water. Calculate the concentration in terms of mass by mass percentage of the solution.
13. ^B Write the difference between SER and RER on the basis of the following :
- Structure
 - Function
14. ^B Describe the structure and function of Stomata.
15. ^V Which two factors bring about the loss of food grains during storage ? Give one example.
16. ^V Write any two advantages of composite fish culture.

17. Which is the most common method of obtaining improved variety of crops. Name and explain the process.

Or

What are the desirable agronomic characteristics for crop improvement ?

18. (a) State the law of conservation of momentum. (3 marks)
(b) A bullet of mass 0.02 kg is fired from a gun weighing 8 kg. If the initial velocity of the bullet is 200 m/s. Calculate the speed with which the gun recoils.
19. (a) Define uniform circular motion.
(b) An athlete completes one round of a circular track of diameter 100 m in 20 sec. What will be the distance covered and displacement at the end of 1 min ?
20. (a) Write the difference between mass and weight of an object. (Any two points)
(b) If mass of a body is 9.8 kg on earth, what would be its mass on moon ?
21. (a) State the universal law of gravitation.
(b) Why is 'G' called the universal gravitational constant ?
22. On the moon's surface, the acceleration due to gravity is 1.67 m/s^2 . If the radius of moon is $1.74 \times 10^6 \text{ m}$, calculate the mass of the moon. (Take $G = 6.67 \times 10^{-11} \text{ Nm}^2 / \text{Kg}^2$)

Or

Calculate the force of gravitation between a boy of mass 50 kg and his friend of mass 60 kg sitting at a distance of 1 m from each other. (Take $G = 6.67 \times 10^{-11} \text{ Nm}^2 / \text{Kg}^2$)

23. Give reasons for the following observations :
- (a) Evaporation produces cooling.
(b) Rate of evaporation of an aqueous solution decreases with increase in humidity.
(c) Sponge though compressible is a solid.
24. With reasons, explain out of solids, liquids and gases, which one has :
- (a) Maximum movement of particles.
(b) Maximum interparticle forces of attraction.
(c) Minimum spaces in between constituent particles.
25. Which of the following, is a physical or a chemical change. Give reasons :
- (a) Freezing of water
(b) Rusting of Iron

(c) Mixing Iron fillings and Sand

26. You are provided with a mixture containing sand, Iron filings, ammonium chloride and sodium chloride. Describe the processes you would use to separate these constituents from the mixture ?

Or

Explain the following giving examples :

(a) A colloid (b) A suspension (c) A Saturated solution

27. (a) State one feature that is similar and one feature that dissimilar with respect to mitochondria and plastids.

(b) Name the two types of plastids.

28. Give one main point of difference between :

(a) Tendons and Ligaments

(b) Bones and Cartilage

(c) Meristematic tissue and Permanent tissues

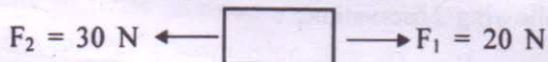
29. What is intercropping ? How are crops selected for intercropping ?

Or

Which method is used for improving cattle breeds ? Explain how ?

30. (a) Differentiate between balanced and unbalanced forces. (5 mark)

(b) Two forces F_1 and F_2 are acting on an object as shown :



(i) What is the net force acting on the object ?

(ii) What is the direction of the net force acting on the object ?

(iii) If the mass of the object is 10 kg. What will be the acceleration produced in it ?

Or

(a) State the law of Inertia.

(b) Why do the driver and the person seated in the front seat of a moving vehicle need a seat belt ?

(c) Two balls A and B of masses 'm' and '3m' are moving with velocities '3v' and 'v' respectively. Which one has greater inertia and why?

31. Give an example each for the mixture having the following characteristics. Also suggest a suitable method to separate the components of these mixtures.

- (a) A volatile and a non-volatile component
- (b) Two volatile components with appreciable difference in boiling points.
- (c) Two immiscible liquids
- (d) One of the components changes directly from solid to gaseous state
- (e) Two or more coloured constituents soluble in some solvent.

Or

Fractional distillation is suitable for separation of miscible liquids with a boiling point difference of about 25 K or less. What part of fractional distillation apparatus makes it efficient and possesses an advantage over a simple distillation process. Explain using a diagram.

32. (a) What is the difference between simple permanent tissues and complex permanent tissues ?
- (b) Name the two type of complex tissues.
 - (c) Write the two ways in which these tissues differ from each other.

Or

- (a) Write difference between smooth and striated muscles on the basis of the following :
 - (i) Structure
 - (ii) Function
- (b) Draw and label a neuron ?
- (c) Write the function of a neuron ?