

1. The undefined nuclear region of prokaryotes is also known as: 1
(A) nucleus (B) nucleolus
(C) nucleoid (D) nucleic acid

2. X is a form of matter that has no fixed shape but has a fixed volume. What is X? 1
(A) Argon (B) Carbon dioxide
(C) Kerosene (D) Krypton

3. SI unit of measurement of acceleration is: 1
(A) m/s (B) m/s^2
(C) km h^{-1} (D) km h^{-2}

4. If an object is moving in a circular path with a constant speed, then its: 1
(A) acceleration increases (B) velocity is zero
(C) velocity is uniform (D) Distance is zero

5. The substance that undergoes sublimation is: 1
(A) Ammonium sulphate (B) Potassium chloride
(C) Potassium sulphate (D) Ammonium chloride

6. Sunlight takes 5×10^2 seconds to reach the Earth at a speed of $3 \times 10^8 \text{ m/s}$, so the distance between the Sun and the Earth is: 1
(A) $15 \times 10^{16} \text{ km}$ (B) $15 \times 10^{10} \text{ m}$
(C) $16 \times 10^4 \text{ km}$ (D) $30 \times 10^{10} \text{ km}$

7. Plant roots absorb water from the soil through: 1
(A) active transport (B) diffusion
(C) osmosis (D) endocytosis

8. Which one of the following sets of phenomenon would increase on raising the temperature? 1

- (A) Diffusion, evaporation, compression of gases. (B) Evaporation, compression of gases and solubility.
- (C) Evaporation, diffusion, expansion of gases. (D) Evaporation, solubility, diffusion and compression of gases.

9. Plasmolysis in a plant is defined as: 1

- (A) Breakdown of plasma membrane in hypotonic medium (B) Shrinkage of cytoplasm in a hypertonic medium
- (C) Shrinkage of nucleoplasm (D) Swelling of cell in hypotonic medium

Direction (Q10 to Q12): In following questions, the Assertion and Reason have been put forward. Read the statements carefully and choose the correct alternative from the following:

- (A) Both Assertion and Reason are true and the Reason is a correct explanation of the Assertion.
- (B) Both Assertion and Reason are true but Reason is not a correct explanation of the Assertion.
- (C) Assertion is true but the Reason is false.
- (D) Both Assertion and Reason are false.

10. Assertion: Mitochondria and plastids are able to make some of their own proteins. 1

Reason: Ribosomes are the sites of protein manufacture.

11. Assertion: Large volume of a gas can be filled into a small cylinder and transported easily. 1

Reason: Gases are highly compressible.

12. Assertion: Velocity specifies both rate of change of motion and direction of motion. 1

Reason: Velocity is a physical quantity.

13. Two balls of different masses are thrown vertically upwards with the same velocity. Which one of them will rise to a greater height? 1
14. What are prokaryotes? 1
15. Define uniform acceleration. 1
16. Name any two materials stored in the leucoplasts. 1

SECTION B

17. 3
- (a) A particle moves over three quarters of a circle of radius r . What is the magnitude of its displacement?
 - (b) Why is the motion in a circle with constant speed called accelerated motion?
 - (c) A person travelling in a bus noted the timing and corresponding distances as indicated on the km stones.

Time	9.00 am	9.10 am	9.20 am	9.30 am	9.40 am
Distance	15 km	30 km	45 km	60 km	75 km

What conclusion do you draw about the motion of the bus from the data given in the table?

18. Give reasons for the following statements. 3
- (d) Cell walls permit the cells of fungi and bacteria to withstand very dilute (hypotonic) external media without bursting.
 - (e) Plant cell shrinks when kept in a hypertonic solution.
19. (a) What is evaporation? 3
- (b) Define the following.
- i. Latent heat of vapourisation
 - ii. Melting point

20. A cyclist moving along a circular path of radius 63 m completes three rounds in 3 minutes. Calculate: 3

- (a) The total distance covered by him during this time.
- (b) Net displacement of the cyclist.
- (c) The speed of the cyclist.

21. Give reasons for the following: 3

- (a) Why does ice float on water?
- (b) Why does a gas fill completely the vessel in which it is kept?
- (c) Latent heat of evaporation of two liquids A and B is 100 J/kg and 150J/kg respectively, which one can produce more cooling effect and why?

OR

- (a) What will be the effect of decrease in temperature on evaporation?
- (b) How does high humidity affect rate of evaporation? Why?

22. 3

- (a) Describe under what circumstance is the magnitude of the average velocity of an object is equal to its average speed?
- (b) Give one example for each of the following types of motion from everyday life.
 - (i) Acceleration is in the direction of motion
 - (ii) Acceleration is uniform

OR

- (a) Distinguish between distance and displacement.
- (b) Mention the physical quantity shown by the slope of a speed versus time graph.

23. Explain the role of the following: 3

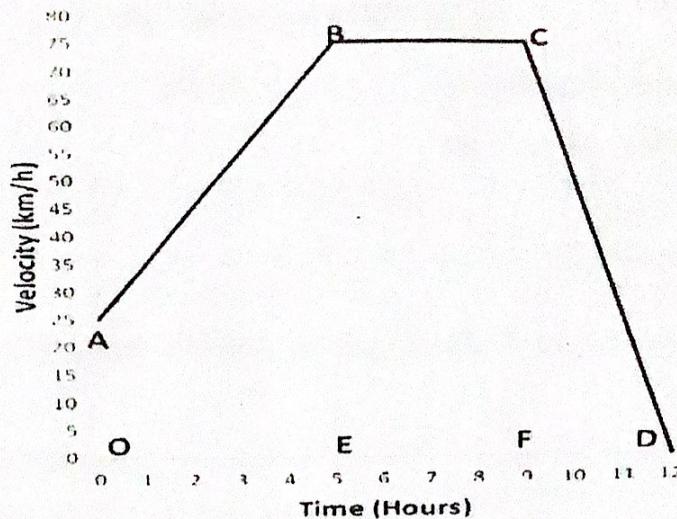
- (a) Cellulose in cell wall
- (b) Digestive enzymes in lysosomes
- (c) Deeply folded membrane in the mitochondria

OR

- (a) What are chromosomes?
(b) What are the chromosomes composed of?
(c) What do they contain?
24. What would happen if the plasma membrane ruptures? 3
- SECTION C**
25. 5
- (a) State any two functions of Golgi apparatus.
(b) Name the organelle which provides turgidity and rigidity to the plant cell.
(c) State any one function of the smooth endoplasmic reticulum?
(d) What is cellular reproduction?
- OR**
- (a) Define endocytosis. Name an organism which obtains its food through endocytosis.
(b) Name any two cell organelles which are bound by a double layered membrane.
(c) Name the cell organelle responsible for intracellular transport.
26. An object is moving with a velocity of 24 km/s and it accelerates at 3 km/s^2 in the same direction of its initial motion. 5
- (a) Calculate the time in which the object would acquire a velocity double of its initial velocity.
(b) How much distance would the object travel in this time?

OR

The following velocity - time graph describes the motion of a train.



- (a) What is the initial speed of the train?
(b) What is the maximum speed attained by the train?
(c) Which part of the graph shows varying negative acceleration?
(d) Find the distance travelled by the car in first nine hours?
27. (a) Why should we wear cotton clothes in summer?
(b) A diver is able to cut through water in a swimming pool. Which property of matter does this observation show?
(c) Sponge though compressible is a solid. Explain.
(d) Give the full forms and one use of the following:
(i) CNG
(ii) LPG
28. (a) Alka was making tea in a kettle. Suddenly, she felt intense heat from the puff of steam gushing out of the spout of the kettle. State whether the temperature of the steam was higher than that of water boiling in the kettle and also explain why she felt intense heat.
(b) (i) Give two reasons to justify that iron almirah are a solid at room temperature.
(ii) List one property that liquids have in common with gases.

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