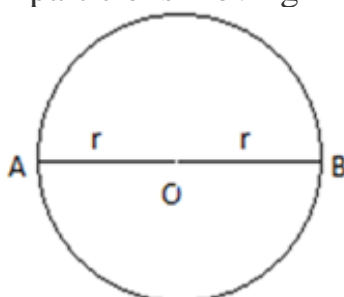|	INDIAN SCHOOL AL WADI AL KABIR DEPARTMENT OF SCIENCE 2021 - 22 CLASS 9 - PRE-MIDTERM QUESTION PAPER -2021 [QUESTIONPAPER & ANSWER KEY]

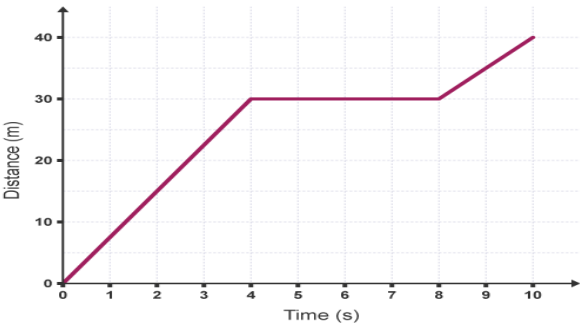| Sl.no	Questions	Marks

1.	A large amount of energy is required by the cell to carry out various cellular processes. Which part of mitochondria helps generate enough energy required for various chemical activities and how?
	   a) The folds present in the inner mitochondrial membrane decrease the surface area for more ATP production.
	   b) The folds present in the inner mitochondrial membrane increase the surface area for more ATP production.
	   c) The folds present in the outer mitochondrial membrane increase the surface area for more ATP production.
	   d) The folds present in the outer mitochondrial membrane decrease the surface area for more ATP production
		1

2	Valency of Magnesium (Mg-12) is (a) 1 (b) 2 (c) 3 (d) 4	1
3.	A particle is moving in a circular path of radius r. The displacement after half a circle would be: (a) Zero (b) πr	1

	(c) 2r (d) $2\pi r$	
4.	The image shows a bacterial cell and an animal cell Based on the structures, a student claims that the animal cell contains complex structures that are absent in the bacterial cell. Which statement can the student make to support the claim? a) Animal cell contains flagella that aids in locomotion that is absent in case of a bacterial cell. b) Nuclear material of the bacterial cell is not enclosed in a nuclear envelope as in case of an animal cell. c) Cytoplasmic content of the bacterial cell is not enclosed in a thick cell wall as in case of an animal cell. d) Animal cell contains ribosomes spread across the cell whereas in case of bacterial cell they are clumped together.	1
5	Which of the following electronic configurations is wrong? (a) Li (3) = 2, 1 (b) O (8) = 2, 6 (c) S (16) = 2, 6, 8 (d) P (15) = 2, 8, 5	1

6	Which of the following can sometimes be 'zero' for a moving body? i. Average velocity ii. Distance travelled iii. Average speed iv. Displacement (a) Only (i) (b) (i) and (ii) (c) (i) and (iv) (d) Only (iv)	1
7	The table lists some functions performed by some cell structures. P. It separates the content of the cell from the surroundings. Q. It is a site where many cellular processes occur. R. It controls the process of cell division. S. It controls the movement of substances in and out of the cells. Which option shows the organelle correctly matched with the respective function? a) Cytoplasm- Q and S, nucleus- P, plasma membrane- R b) Cytoplasm- Q and R, nucleus- P, plasma membrane- S c) Cytoplasm- Q, nucleus- R, plasma membrane- S and P d) Cytoplasm- R, nucleus- Q, plasma membrane- S and P	1
8	**ASSERTION AND REASON TYPE QUESTIONS:** DIRECTIONS: In each of the questions given below, there are two statements marked as Assertion (A) and Reason (R). Mark your answer as per the codes provided below: 1. Both A and R are true and R is the correct explanation of A.	1

	2. Both A and R are true but R is not the correct explanation of A. 3. A is true but R is false. 4. A is false but R is true. 5. Both A and R are false. Assertion: Cell is the fundamental structural and functional unit of all living organisms. Reason: Anything less than a complete structure of a cell does not ensure independent living (i) Both A and R are true and R is the correct explanation of the assertion. (ii)Both A and R are true but R is not the correct explanation of the assertion. (iii) A is true but R is false. (iv) A is false but R is true.	
9	Assertion: Golgi bodies store, modify and pack products in vesicles. Reason: They are involved in the formation of lysosomes. (i) Both A and R are true and R is the correct explanation of the assertion. (ii)Both A and R are true but R is not the correct explanation of the assertion. (iii) A is true but R is false. (iv) A is false but R is true.	1
10	Assertion: Atom is electrically neutral. Reason: A neutral particle, neutron is present in the nucleus of atom. (i) Both A and R are true and R is the correct explanation of the assertion. (ii)Both A and R are true but R is not the correct explanation of the assertion.	1

	(iii) A is true but R is false. (iv) A is false but R is true.	
11	. Assertion: A boy riding on bicycle in a crowded street exhibit non uniform motion. Reason: The boy covers equal distance in equal interval of time. (i) Both A and R are true and R is the correct explanation of the assertion. (ii)Both A and R are true but R is not the correct explanation of the assertion. (iii) A is true but R is false. (iv) A is false but R is true.	1
12	Almost all the mass of an atom is concentrated in a small region of space called the......... (a) Nucleons (b) Nucleus (c) Orbit (d) Atom	1
13	The SI unit of velocity is _____ and it is _____ quantity. (a) m/s, vector (b) ms, vector (c) m/s, scalar (d) m, scalar	1
14	The numerical ratio of displacement to distance for a moving object is--------- (a) Always less than 1 (b) Equal to 1 or less than 1 (c) Always more than 1 (d) Equal to 1 or more than one	1
15	Plant cell wall is mainly composed of ------------	1

	a) Protein b) Cellulose c) Lipids d) Phospholipid	
16	Cellular organelles called ----------are often referred to as suicidal bags. a) Ribosomes b) Golgi apparatus c) Lysosomes d) Vacuoles	1
17	The K-shell of any atom cannot have more than .... electrons. (a) Three (b) Eight (c) One (d)Two	1
18	**CASE STUDY BASED QUESTIONS:** Read the following and answer the questions Raisins are dehydrated grapes. Raisins swell up when soaked up in water. This is due to osmosis. Osmosis is a type of diffusion in which the molecule from a solution of higher concentration move into the solution of lower concentration through a semipermeable membrane along a concentration gradient. Osmosis is of two types – endosmosis and exosmosis. 18. What will happen if the raisins are placed in sugar solution instead of water? a) Raisins swell up b) Raisins shrink c) Raisins take in sugar and taste sweeter d) Raisins split	 1
19	What is the solution called when its concentration is the same as concentration inside the cell?	1

	a) Hypertonic solution b) Isotonic solution c) Hypotonic solution d) Dilute solution	

20	Which of the following statements is incorrect about osmosis?
	   a) It occurs only in plants
	   b) It occurs through a semipermeable membrane
	   c) The water molecules move from region of higher concentration to a region of lower concentration
	   d) The molecules move along a concentration gradient
		1

21 22 23	**MATCH THE COLUMNS** Match the columns choosing the correct option.	1 1 1

21.Oxygen(Z=8,A=16)	Electrons=6, protons=6, neutrons=6
22.Sodium(Z=11, A=23)	Electrons=8, protons=8, neutrons=8
23.Carbon(Z=6, A=12)	Electrons=11, protons=12, neutrons=11
	Electrons=11, protons=11, neutrons=12

24	**GRAPH BASED QUESTIONS**	1

Look at this distance-time graph and answer the following questions.

How far did the vehicle travel in the first 4 seconds?

25	What was the speed of the vehicle over the first 4 seconds?	1
26	What was the average speed of the vehicle over the journey?	1
27.	**NUMERICAL BASED** An atom of an element has full K and L shells and has 5 electrons in its M shell. The atomic number of this atom is: (a) 13 (b)15 (c) 10 (d) 12	
28	The atomic number of an element X is 8 and that of element Y is 4. Both these elements can exhibit a valency of: (a) 1 (b) 2 (c) 3 (d) 4	1

29	The maximum speed of a train is 90 km/h. It takes 10 hours to cover a distance of 500 km. Find the ratio of its average speed to maximum speed?
	  A. 5:9
	  B. 9:5
	  C. 90: 10
	  D. 10:1
		1

30	A car starts from rest and acquires a velocity of 54 km/h in 2 sec. Find the acceleration.
	
	  A. 17 km/h
	  B. 17 m
	  C. 7.5 km/h
	  D. 7.5 m/s^2
		1

ANSWER KEY

1. a.The folds present in the inner mitochondrial membrane decrease the surface area for more ATP production	2. (b) 2	3 (c)-2r	4 b) Nuclear material of the bacterial cell is not enclosed in a nuclear envelope as in case of an animal cell.	5 (c) S (16) = 2, 6, 8	6 © (i) and (iv)
7.c.Cytoplasm - Q, nucleus-R, plasma membrane-S and P	8. (i) Both A and R are true and R is the correct explanation of the assertion	9 (ii) Both A and R are true but R is not the correct explanation of the assertion.	10 (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).	11 A is true but R is false.	12 (b) Nucleus
13 (a) m/s, vector	14 (b) Equal to 1 or less than 1	15 e) Cellulose	16 e) Lysosomes	17 (d) Two	18 e) Raisins shrink
19 e)Isotonic solution	20 e) It occurs only in plants	21 Electrons=8, protons=8, neutrons=8	22 Electrons=11, protons=11, neutrons=12	23 Electrons=6, protons=6, neutrons=6	24 30 m
25 7.5 m/s	26 4 m/s	27 (b) 15	28 (b) 2	29 5:9	30 7.5 m/s^2