



**OSDAV PUBLIC SCHOOL, KAITHAL**  
**UNIT TEST- JULY (2024)**  
**CLASS- XI**  
**SUBJECT- BIOLOGY**

**Set- A**

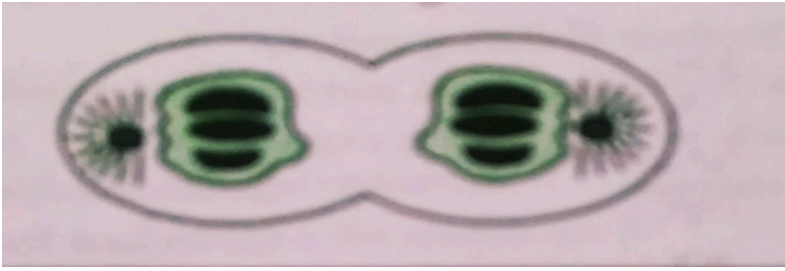
**Time: 1 hr 30 min.**

**M.M. 35**

**General Instructions:-**

**I. All questions are compulsory.**

**SECTION- A**

<b>Q.1</b>	Which of the following statement is correct with reference to enzymes; A) Apoenzyme = Holoenzyme+Coenzyme B) Holoenzyme= apoenzyme+coenzyme C) Coenzyme= apoenzyme+holoenzyme D) Holoenzyme= coenzyme+cofactor	<b>1</b>										
<b>Q 2</b>	stage in the cell shown in the figure. Select the answer which gives correct identification off the stage:  A) Telophase      B)Cytokinesis      C(Metaphase      D)Anaphase	<b>1</b>										
<b>Q.3</b>	Which Statement is False for Capsid? A)It consists of capsomeres B)This the outermost layer of most viruses C)They are arranged in random geometrical structure D)It protects genetic material	<b>1</b>										
<b>Q.4</b>	Which of the following Fungi is called as imperfect fungi? A) Deuteromycetes B) Phycomycetes C) Basidiomycetes D) Ascomycetes	<b>1</b>										
<b>Q.5</b>	Select the correct option from Column-I and Column-II <table style="width: 100%; border: none;"> <thead> <tr> <th style="width: 50%;">Column-I</th> <th style="width: 50%;">Column-II</th> </tr> </thead> <tbody> <tr> <td>A Chromatin</td> <td>i Flat membranous sacs in stroma.</td> </tr> <tr> <td>B Cisternae</td> <td>ii Infoldings in mitochondria</td> </tr> <tr> <td>C Thylakoids</td> <td>iii Disc shaped sacs in Golgi apparatus</td> </tr> <tr> <td>D Cristae</td> <td>iv Highly extended and elaborate nucleoprotein</td> </tr> </tbody> </table> A)A-iv, B-iii, C-i, D-ii      B)A-iv, B-i, C-ii, D-iii C)A-ii, B-i, C-iv, D-iii      D)A - ii, B - i, C - iv, D - iii	Column-I	Column-II	A Chromatin	i Flat membranous sacs in stroma.	B Cisternae	ii Infoldings in mitochondria	C Thylakoids	iii Disc shaped sacs in Golgi apparatus	D Cristae	iv Highly extended and elaborate nucleoprotein	<b>1</b>
Column-I	Column-II											
A Chromatin	i Flat membranous sacs in stroma.											
B Cisternae	ii Infoldings in mitochondria											
C Thylakoids	iii Disc shaped sacs in Golgi apparatus											
D Cristae	iv Highly extended and elaborate nucleoprotein											
<b>Q.6</b>	A fatty acid has two groups, –R group and _____	<b>1</b>										



	B)What is the difference between a virus and a viroid? C)What is diatomaceous earth?	<b>3</b>
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**SECTION-D**

<b>Q.1 6</b>	<p style="text-align: center;"><b>CASE STUDY BASED QUESTION</b></p> <p>Read the following and answer any four questions:          The detailed structure of the membrane was studied only after the advent of the electron microscope in the 1950s. Meanwhile, chemical studies on the cell membrane, especially in human red blood cells (RBCs), enabled the scientists to deduce the possible structure of the plasma membrane. These studies showed that the cell membrane is composed of lipids, proteins and carbohydrates.</p> <p>1 Which component of the plasma membrane is arranged as a bilayer?          2.What percentage of the membrane of human erythrocytes consists of proteins,fats and carbohydrates?          3.Depending on the ease of extraction, how many types of proteins are present in plasma membranes? Name them.          4.<b>Assertion:</b> The plasma membrane is selectively permeable to some molecules present on either side of it.  <b>Reason:</b> Neutral solutes may move across the membrane by the process of simple diffusion.  <b>A)</b> Both assertion and reason are true, and reason is the correct explanation of the assertion.  <b>B)</b>Both assertion and reason are true, and reason is not the correct explanation of the assertion.  <b>C)</b>Assertion is true but reason is false.  <b>D)</b>Both assertion and reason are false.</p>	<b>4</b>
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**SECTION-E**

<b>Q 17</b>	A)Amino acids exist as zwitterions. Give its structure. Why is it formed? B) Explain the structure and function of Eukaryotic Cilia with well labelled diagrams.	<b>5</b>
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Time: 1 hr 30 min.

M.M. 35

General Instructions:-

I. All questions are compulsory.

SECTION- A

Q.1	B	1
Q.2	A	1
Q.3	C	1
Q.4	A	1
Q.5	A	1
Q.6	B	1
Q.7	C	1
Q.8	A	1

SECTION-B

Q.9	<p>The system of binomial nomenclature was introduced by Carl Linnaeus</p> <p>The binomial nomenclature rules for writing the scientific names of organisms include the following:</p> <p>All the scientific names of organisms are usually Latin. Hence, they are written in italics.</p> <p>There exist two parts of a name. The first word identifies the genus and the second word identifies the species.</p> <p>When the names are handwritten, they are underlined or italicised if typed.</p> <p>This is done to specify its Latin origin.</p> <p>The name of the genus starts with a capital letter and the name of the species starts with a small letter.</p>	<p>1/2</p> <p>1/2</p> <p>1/2</p> <p>1/2</p>
Q.10	<p>The extranuclear small circular DNA in bacteria is known as a plasmid.</p> <p>Plasmids confer some unique phenotypic characters to bacteria such as resistance to antibiotics.</p>	<p>1</p> <p>1</p>
Q.11	<p>· A is mitosis.</p> <p>· B is meiosis</p> <p>· Line segment “bc” represents S phase because during this phase DNA replication takes place and the amount of DNA per cell doubles, i.e if the initial amount of DNA is 2C then it will increase to 4C.</p>	<p>1/2</p> <p>1/2</p> <p>1</p>

SECTION-C

Q.12	<p>a)Starch forms helical secondary structures which can hold iodine, but cellulose does not contain helices, and so cannot hold iodine.</p>	1
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	b)Proteins are heteropolymers because they are made up of upto 20 distinct amino acids c)Malonate is a competitive inhibitor of the enzyme succinate dehydrogenase: malonate binds to the active site of the enzyme without reacting, and so competes with succinate, the usual substrate of the enzyme.	1 1
<b>Q 13</b>	A)Significance of Mitosis Mitosis is responsible for the development of the zygote into an adult. Equal distribution of chromosomes to each daughter cell. It is responsible for the growth and development of an individual. It maintains the constant number of chromosomes in all body cells of an organism. B)Two key events take place during S phase in animal cells, DNA replication and duplication of centriole. C)The G0 phase is often referred to as the resting phase. The G0 phase is the phase in the cell cycle in which the cell is neither dividing nor preparing for division; hence it's in a resting phase. The cell enters this phase after it is done dividing or duplicating (mitosis).	1 1 1
<b>Q.14</b>	A)Although both lysosomes and vacuoles are endomembranous structures, their roles are distinct: - i) Hydrolytic enzymes, such as lipase and protease, are found in lysosomes and may digest lipids, proteins, nucleic acids, and carbohydrates. (ii)Vacuoles are membrane-bound gaps that allow numerous ions and other materials to travel against a concentration gradient. B)The nuclear membrane has minute holes that are known as nuclear pores. They allow RNA and proteins to flow between the nucleus and the cytoplasm.	2 1
<b>Q.15</b>	A)Cyanobacteria have the ability to fix atmospheric nitrogen and make it available to the plants. This improves the crop yield. That is why cyanobacteria are used in agricultural fields. B)Viroids are free RNA molecules of low molecular weight without any protein coat while viruses can have either RNA or DNA molecules encapsulated in a protein coat. C)'Diatomaceous earth' is the accumulation of large deposits of diatoms that forms a siliceous covering extending for several 100 m formed in billions of years. The material obtained from these deposits is used in polishing and filtration of oils and syrups.	1 1 1

#### SECTION-D

<b>Q.1 6</b>	1.The lipids are arranged in a bilayer in the plasma membrane with the polar head towards the outer sides and the hydrophobic tails towards the inner part. 2.human beings, the membrane of the erythrocyte has approximately 52 percent protein and 40 percent lipids and 8 percent carbohydrates. 3.Depending on the ease of extraction, membrane proteins can be classified into two types – integral or peripheral. 4. B	4
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#### SECTION-E

<b>Q 17</b>	AA zwitterion is a molecule with both positively and negatively charged components but no net electrical charge. It is formed due to the ionizable nature of the carboxyl and amino group, that is, -COOH and -NH <sub>2</sub> group. Diagram B)Cilia Structure	1 1
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**UNIT TEST- JULY (2024)**  
**CLASS- XI**  
**SUBJECT- BIOLOGY**

Set- B

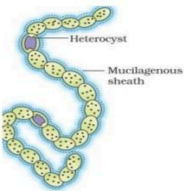
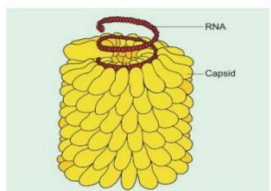
**Time: 1 hr 30 min.**

**M.M. 35**

**General Instructions:-**

**I. All questions are compulsory.**

**SECTION- A**

<b>Q.1</b>	How many peptides bond will form when 100 Amino acids are combing in the formation of polypeptide chain. A.100                      B.99                      C.400                      D.101	<b>1</b>
<b>Q 2</b>	Which of the following statements are true related to figure. X and Figure Y. <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <p>Fig-X                      Fig-Y</p> <p>A.X- blue green algae filament, Y-Tobacco mosaic virus            B.Y-Tobacco mosaic virus, X-Fungal filament            C.X- blue green algae filament, Y-Bacteriophage            D.X- blue green algae filament, mushroom</p>	<b>1</b>
<b>Q.3</b>	We go from species to kingdom in a taxonomic hierarchy, the number of common characteristics A.Remain same                      B.Will increase C.Will decrease                      D.May increase or decrease	<b>1</b>
<b>Q.4</b>	Choose the wrong statement: (a) Neurospora is used in the study of biochemical genetics (b) Morels and truffles are poisonous mushrooms (c) Yeast is unicellular and useful in fermentation (d) Penicillium is multicellular and produces antibiotic	<b>1</b>
<b>Q.5</b>	Select the correct option from Column-I and Column-II Column-I    Column-II P Robert Hooke                      1 Cell theory Q Robert Brown                      2 Golgi apparatus R Schleiden                      3 Cell S Camillo Golgi                      4 Nucleus (a) (P – 3) (Q – 4) (R – 1) (S – 2)                      (b) (P – 1) (Q – 2) (R – 4) (S – 3) (c) (P – 2) (Q – 1) (R – 3) (S – 4)                      (d) (P – 4) (Q – 2) (R – 1) (S – 3)	<b>1</b>
<b>Q.6</b>	Competitive inhibition of an enzyme can be seen in the inhibition of? (a) succinic dehydrogenase by malonic acid                      (b) cytochrome oxidase by cyanide (c) hexokinase by glucose-6-phosphate                      (d) carbonic anhydrase by carbon dioxide	<b>1</b>

<b>Q.7</b>	<b>Assertion and reason based questions</b> A) both assertion and reason are true and reason is the correct explanation of assertion B) both assertion and reason are true and reason is not the correct explanation of assertion C) assertion is true but reason is false D) assertion is false and reason is true <b>Assertion:</b> Proteins are a heteropolymer. <b>Reason :</b> Dietary proteins are the source of non-essential amino acids.	<b>1</b>
<b>Q.8</b>	<b>Assertion :</b> In animal cells, the cytokinesis is marked by the appearance of a furrow in the plasma membrane. <b>Reason :</b> In plant cells, the formation of the new cell wall starts with the formation of a simple precursor called a cell plate.	<b>1</b>

**SECTION-B**

<b>Q.9</b>	Write a short note on Binomial Nomenclature.	<b>2</b>
<b>Q.10</b>	Give the specific terms for the following (a) Cluster of ribosomes found in the cytoplasm (b) Extensive in folding to the inner membrane of mitochondria. (c) Stacks of closely packed thylakoids (d) Stalked particles on the inner membrane of mitochondria.	<b>2</b>
<b>Q.11</b>	Write the phases of the cell cycle against each of the events a) The disintegration of the nuclear membrane                      b) The appearance of the nucleolus c) Division of centromere    d) Replication of DNA	<b>2</b>

**SECTION-C**

<b>Q.12</b>	A)Chitin, Cellulose, Glycogen, Polysaccharides and Starch are present in the following options. Choose and write appropriately against each. a) Cotton fibre b) Exoskeleton of Cockroach c) Liver d) Peeled Potato B)How are co-factors different from prosthetic groups?	<b>3</b>
<b>Q.13</b>	a) Give three points of difference between mitosis and meiosis. (b) Where does meiosis occur in the human body ? (c) What is the significance of meiosis in living organisms ?	<b>3</b>
<b>Q.14</b>	A)"Both lysosomes & vacuoles are endomembrane structures yet they differ in terms of their functions" comment. B)What are nuclear pores? State their function.	<b>3</b>
<b>Q.15</b>	A)Why are cyanobacteria used in agricultural fields for crop improvement? B)What is the difference between a virus and a viroid? C)What is diatomaceous earth?	<b>3</b>

**SECTION-D**

<b>Q.1</b> <b>6</b>	<b>CASE STUDY BASED QUESTION</b> Read the following and answer any four questions: The detailed structure of the membrane was studied only after the advent of the electron microscope in the 1950s. Meanwhile, chemical studies on the cell membrane, especially in human red blood cells (RBCs), enabled the scientists to deduce the possible structure of the plasma membrane. These studies showed that the cell membrane is composed of lipids, proteins and carbohydrates.	<b>4</b>
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	<p>1 Which component of the plasma membrane is arranged as a bilayer?</p> <p>2. What percentage of the membrane of human erythrocytes consists of proteins, fats and carbohydrates?</p> <p>3. Depending on the ease of extraction, how many types of proteins are present in plasma membranes? Name them.</p> <p>4. <b>Assertion:</b> The plasma membrane is selectively permeable to some molecules present on either side of it.  <b>Reason:</b> Neutral solutes may move across the membrane by the process of simple diffusion.</p> <p>A) Both assertion and reason are true, and reason is the correct explanation of the assertion.  B) Both assertion and reason are true, and reason is not the correct explanation of the assertion.  C) Assertion is true but reason is false.  D) Both assertion and reason are false.</p>	
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**SECTION-E**

<b>Q 17</b>	<p>A) Give scientific name of species of fungus:-</p> <p>(a) Produces a plant disease.                      (b) Is edible  (c) A source of antibiotic                              (d) Used in manufacture of ethanol.</p> <p>B) Explain the structure and function of Control centre of the cell with well labelled diagram</p>	<b>5</b>
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OSDAV Public School, Kaithal

Unit Test (July,2024) Answer Key

SET- B

Class : XI

Subject : Biology

Time: 1 hr 30 min.

M.M. 35

General Instructions:-

I. All questions are compulsory.

**SECTION- A**

Q.1	B	1
Q.2	A	1
Q.3	C	1
Q.4	B	1
Q.5	A	1
Q.6	A	1
Q.7	C	1
Q.8	B	1

**SECTION-B**

Q.9	The system of binomial nomenclature was introduced by Carl Linnaeus	½
	The binomial nomenclature rules for writing the scientific names of organisms include the following:	
	All the scientific names of organisms are usually Latin. Hence, they are written in italics.	½
	There exist two parts of a name. The first word identifies the genus and the second word identifies the species.	½
	When the names are handwritten, they are underlined or italicised if typed.	½
Q.10	This is done to specify its Latin origin.	½
	The name of the genus starts with a capital letter and the name of the species starts with a small letter.	
	(a) The clumped ribosomes in the cytoplasm are called polyribosomes or polysomes.	½
	(b) The folding of the inner membrane of mitochondria is called cristae.	½
	(c) The stacks of thylakoids that are closely packed to each other are known as grana.	½
	(d) The stalked particles of mitochondria on the inner membrane are Fe F	½

	particles.	
<b>Q.1</b> <b>1</b>	a) Prophase. b) Telophase. c) Anaphase. d) S-phase.	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$

**SECTION-C**

<b>Q.12</b>	A)a) Cotton fibre – Cellulose b) The exoskeleton of Cockroach – Chitin c) Liver – Glycogen d) Peeled Potato – Starch B)Prosthetic groups are organic compounds whereas cofactors can be organic or inorganic (metal ions). Prosthetics are distinguished from cofactors as they are tightly bound to the apoenzyme.	<b>2</b> <b>1</b>
<b>Q 13</b>	A)Mitosis involves the division of body cells, while meiosis involves the division of sex cells. The division of a cell occurs once in mitosis but twice in meiosis. Two daughter cells are produced after mitosis and cytoplasmic division, while four daughter cells are produced after meiosis. B)Meiosis is a special version of cell division that occurs only in the testes and ovaries; the organs that produce the male and female reproductive cells; the sperm and eggs. C)Meiosis is important because it ensures that all organisms produced via sexual reproduction contain the correct number of chromosomes. Meiosis also produces genetic variation by way of the process of recombination.	<b>1.5</b> $\frac{1}{2}$ <b>1</b>
<b>Q.14</b>	A)Although both lysosomes and vacuoles are endomembranous structures, their roles are distinct: - i) Hydrolytic enzymes, such as lipase and protease, are found in lysosomes and may digest lipids, proteins, nucleic acids, and carbohydrates. (ii)Vacuoles are membrane-bound gaps that allow numerous ions and other materials to travel against a concentration gradient. B)The nuclear membrane has minute holes that are known as nuclear pores. They allow RNA and proteins to flow between the nucleus and the cytoplasm.	<b>2</b> <b>1</b>
<b>Q.15</b>	A)Cyanobacteria have the ability to fix atmospheric nitrogen and make it available to the plants. This improves the crop yield. That is why cyanobacteria are used in agricultural fields. B)Viroids are free RNA molecules of low molecular weight without any protein coat while viruses can have either RNA or DNA molecules encapsulated in a protein coat. C)Diatomaceous earth' is the accumulation of large deposits of diatoms that forms a siliceous covering extending for several 100 m formed in billions of years. The material obtained from these deposits is used in polishing and filtration of oils and syrups.	<b>1</b> <b>1</b> <b>1</b>

**SECTION-D**

<b>Q.1 6</b>	1.The lipids are arranged in a bilayer in the plasma membrane with the polar head towards the outer sides and the hydrophobic tails towards the inner part. 2.human beings, the membrane of the erythrocyte has approximately 52 percent protein and 40 percent lipids and 8 percent carbohydrates. 3.Depending on the ease of extraction, membrane proteins can be classified into two types – integral or peripheral. 4. B	<b>4</b>
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**SECTION-E**

<b>Q 17</b>	A) a) Puccinia, Ustilago b) Mushroom c) Penicillium d) yeast B) Nucleus. The nucleus is a double-membraned organelle found in all eukaryotic cells. It is the largest organelle, which functions as the control centre of the cellular activities and is the storehouse of the cell's DNA. By structure, the nucleus is dark, round, surrounded by a nuclear membrane. Diagram	<b>2</b> <b>2</b> <b>1</b>
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