



Federal Board HSSC-I Examination
Biology Model Question Paper

Curriculum 2022-2023 (Inclusive Scheme of Studies 2024)

Section - A (Marks 17)

Time Allowed: 25 minutes

Section – A is compulsory. All parts of this section are to be answered on this page and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

ROLL NUMBER					
0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
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7	7	7	7	7	7
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9	9	9	9	9	9

Version No.			
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1	1	1	1
2	2	2	2
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Candidate Sign. _____

Invigilator Sign. _____

Q1. Fill the relevant bubble against each question according to curriculum. Each part carries one mark.

S #	Question	(A)	(B)	(C)	(D)	(A)	(B)	(C)	(D)																									
(i)	A certain poison disrupts the cytoskeleton of cell. Which of the following functions would be affected most probably by the poison?	Digestion within lysosomes	Protein synthesis	Cell division	Cellular respiration	☐	☐	☐	☐																									
(ii)	Identify hetero polysaccharide from the following:	Chitin	Glycogen	Pectin	Cellulose	☐	☐	☐	☐																									
(iii)	Glycolysis is a process that:	Produces ATP and NADH	Produces ATP only	Is not a net producer of energy rich molecules	Consumes as much ATPs as is produced	☐	☐	☐	☐																									
(iv)	What will happen to reaction if activation energy is decreased?	Rate of reaction decreases	Rate of reaction increases	No effect on the rate of reaction	Reaction is reversed	☐	☐	☐	☐																									
(v)	One of the following viruses have complex capsid:	Influenza virus	Adenovirus	Bacteriophage	Tobacco mosaic virus	☐	☐	☐	☐																									
(vi)	We have 1 billion bacteria per square centimetre of our skin. Why we have so many bacteria on our skin?	To produce acne, eczema and pimples on the skin	To limit the growth of pathogens by colonization resistance	To provide essential minerals and nutrients to the body	To help in decomposition after the death of a person	☐	☐	☐	☐																									
(vii)	Sundew is a/an:	Mutualistic plant	Parasitic plant	Carnivorous plant	Autotrophic plant	☐	☐	☐	☐																									
(viii)	Identify the column given in table that contains correct substances related to acylglycerols?	<table><tr><td>Substances</td><td>A</td><td>B</td><td>C</td><td>D</td></tr><tr><td>Amino acid</td><td>✓</td><td>x</td><td>x</td><td>x</td></tr><tr><td>Glucose</td><td>x</td><td>x</td><td>✓</td><td>✓</td></tr><tr><td>Fatty acid</td><td>x</td><td>✓</td><td>x</td><td>x</td></tr><tr><td>Glycerol</td><td>x</td><td>✓</td><td>x</td><td>x</td></tr></table>				Substances	A	B	C	D	Amino acid	✓	x	x	x	Glucose	x	x	✓	✓	Fatty acid	x	✓	x	x	Glycerol	x	✓	x	x	☐	☐	☐	☐
Substances	A	B	C	D																														
Amino acid	✓	x	x	x																														
Glucose	x	x	✓	✓																														
Fatty acid	x	✓	x	x																														
Glycerol	x	✓	x	x																														

(ix)	Trees with mycorrhizal association grow:	Slower than other trees	Better than other trees	Small roots and leaves	Only in favourable conditions	☐ ☐ ☐ ☐
(x)	The function of saprotrophs in an ecosystem is to:	Provide oxygen to producers	Return nutrients to the environment	Increase complexity of food chain	Decrease competition among consumers	☐ ☐ ☐ ☐
(xi)	Which of the following is not common to all divisions of vascular plants?	Development of seeds	Alternation of generations	Xylem and phloem	Dominance of diploid generation	☐ ☐ ☐ ☐
(xii)	All organ systems are less developed in parasitic flat worms EXCEPT:	Circulatory system	Digestive system	Reproductive system	Respiratory system	☐ ☐ ☐ ☐
(xiii)	Traits which exhibit continuous phenotypic variation are typically determined by this inheritance form:	Incomplete dominance	Polygenic inheritance	Multiple-allele inheritance	Sex-linked inheritance	☐ ☐ ☐ ☐
(xiv)	When two golden <i>Labrador retriever</i> cross with each other, they produce golden offsprings:	Zero %	25%	50%	100%	☐ ☐ ☐ ☐
(xv)	Ovulation is stimulated by the sharp increase of which of the following hormone?	SH	Estrogen	LH	Progesterone	☐ ☐ ☐ ☐
(xvi)	All organisms share the same genetic code. This commonality is evidence that:	Evolution is occurring now	Convergent evolution has occurred	All organisms are descended from common ancestor	Evolution occurs gradually	☐ ☐ ☐ ☐
(xvii)	If you want to label amino acids but not DNA, which of the following radioactive isotopes would you use?	^{18}F	^{35}S	^{14}C	^{32}P	☐ ☐ ☐ ☐



Federal Board HSSC-I Examination

Model Question Paper Biology

Curriculum 2022-23 (Inclusive Scheme of Studies 2024)

Time allowed: 2:35 hours

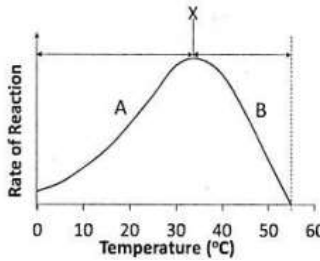
Total Marks: 63

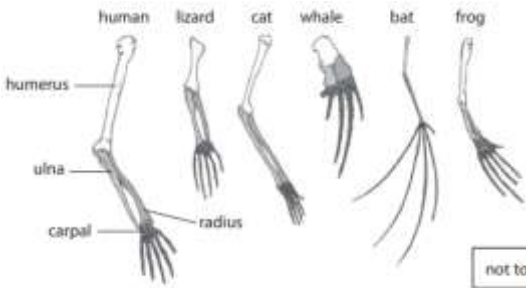
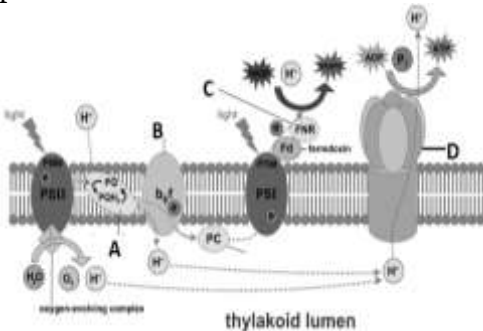
Note: Answer all parts from Section 'B' and all questions from Section 'C' on the **E-sheet**.
Write your answers on the allotted /given spaces.

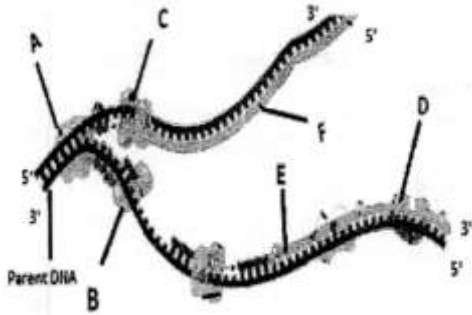
SECTION – B (Marks 39)

Q.2 Attempt the following questions.

(13x3 = 39)

Q#	Question	Marks	Question	Marks							
(i)	List any three organelles bounded by a single membrane and three organelles bounded by double membrane.	0.5x6	OR	List six features of seedless vascular plants.	0.5x6						
(ii)	Proteases are used in washing powders. How would it remove a blood stain on clothes? Why these washing powders are recommended for use at low temperatures?	3	OR	A scientist is trying to find best light colour for maximum yield. Which type of spectrum graph will he refer? Give reason.	3						
(iii)	Why Echinoderms are considered close to Chordates although they have many simplest systems? Give three reasons.	3	OR	Why mice were killed by non-virulent type R bacteria in last step of Griffith's experiment?	3						
(iv)	Justify the significance of sequence of amino acids in normal and sickle cell haemoglobin.	3	OR	Why HIV virus contains two enzymes? What will happen if HIV virus is without these enzymes?	3						
(v)	Differentiate between photoperiodism and phototropism.	3	OR	How chemosynthetic bacteria are autotrophic in nature?	3						
(vi)	List six features of Bryophytes which helped them to adapt land habitat.	0.5x6	OR	Name three chemical methods and three physical methods used to control harmful bacteria.	0.5x6						
(vii)	The graph shows the effects of temperature on the rate of reaction of an enzyme.  (a) What is indicated by X? (b) What is happening in region A? (c) What is happening in region B?	1x3	OR	Name the more scientifically acceptable theory explaining evolution of eukaryotes from prokaryote and give salient points of that theory.	0.5x6						
(viii)	Why spore forming bacteria are more virulent and lethal? Give reasons.	3	OR	Can nitrogen cycle take place in a bacteria free soil? Give reasons.	3						
(ix)	Complete the given table according to structures and functions of male reproductive systems. <table><tr><th>Structure</th><th>Function</th></tr><tr><td>Epididymis</td><td>.</td></tr><tr><td></td><td>Testosterone production</td></tr></table>	Structure	Function	Epididymis	.		Testosterone production	3	OR	Corpus luteum acts as an endocrine gland, a) Where it is located? b) When it is formed? c) Which hormone is secreted by it	3
Structure	Function										
Epididymis	.										
	Testosterone production										

	Urinogenital duct					
(x)	Two pink flowered four o' clock plants are crossed with each other. What is F1 generation probability and ratio?	3	OR	Carefully observe the following stretch of antisense strand of DNA 5' 3' TACGAGCTTCCGATTCTGA Codons for amino acids are: GCU : Alanine, AUG : Methionine, CUC : Leucine, GAA : Glutamate, GGC : Glycine , UAA : Stop Using the provided data, determine the primary structure of protein produced from this segment of DNA, during translation.	3	
(xi)	All chordates go through few similar stages in life. Summarize any three of them.	3	OR	Kingdom Protista is considered a polyphyletic group. Give reasons.	3	
(xii)	State Lamarck's assumptions for the explanation of evolution.	3	OR	Give three unique features of angiosperms and their benefits.	3	
(xiii)	Diagram shows the fore limb of different vertebrates. Evolutionists believe that all these vertebrates evolved from one common origin. Describe the evolutionary evidence that support this belief. 	3	OR	In the following diagram a segment of thylakoid membrane is depicted showing an important metabolic process.  Name the parts labelled as A, B, C and D. Explain the function of D.	2+1	

<u>Section – C (Marks 24)</u> Note: Attempt all questions. Marks of each question are equal. (4x6 = 24)					
Q.3	Explain the structure and composition of fluid mosaic model of plasma membrane with diagram	4+2	OR	The given figure shows the process of DNA replication.  Identify labelled parts A, B, C, D, E and F of the diagram and write the functions of A, B and C in the process of DNA replication.	3+3
Q.4	The two strands of DNA are not identical but are complementary. Give reasons. Also explain the double helical structure of DNA molecule.	1+5	OR	What is ecological succession? Explain the xerarch succession.	1+4+1
Q.5	How opening and closing of stomata is controlled?	3+3	OR	How do bacteriophages reproduce? Explain lytic and lysogenic cycle in detail.	3+3

Q.6	How X- linked recessive characters are inherited in humans? Explain with an example.	2+4	OR	What are the events that capture light and convert it into chemical energy during light dependent non-cyclic reactions?	6
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