



Date: 18/10/22
GRADE: XII

MONTHLY TEST - 3 (2022-23)
BIOLOGY (044)

Max marks: 40
Time: 2 Hours

General Instructions:

- (i) All questions are compulsory.
- (ii) The question paper has five sections and 18 questions. All questions are compulsory.
- (iii) Section-A has 8 questions of 1 mark each; Section-B has 3 questions of 2 marks each; Section-C has 4 questions of 3 marks each; Section-D has 1 case-based question of 4 marks; and Section-E has 2 questions of 5 marks each.
- (iv) There is no overall choice.
- (v) Wherever necessary, neat and properly labelled diagrams should be drawn.

Q NO:		MARKS												
SECTION A														
1	<p>Arrange the following events in the order of synthesis of a protein</p> <ul style="list-style-type: none"> i) A peptide bond forms ii) A tRNA matches its anticodon to the codon in the A- site iii) The movement of second tRNA complex from A-site to P-site iv) The large subunit attaches to the small subunit and the initiator tRNA fits in the P-site v) A small subunit binds to the mRNA vi) The activated amino acid tRNA complex attaches the initiation codon on mRNA <p>A) iv, v, iii, ii, i, vi B) iv, vi, v, ii, I, iii C) v, iv, iii, ii, vi, I D) v, vi, iv, ii, i, iii</p>	1												
2	<p>What were the main criteria taken under consideration for the experiment by Hershey and Chase?</p> <p>A) DNA contains phosphorus, protein contains sulphur B) Protein contains phosphorus, DNA contains sulphur C) Both DNA and protein contains phosphorus and not sulphur D) Both DNA and protein contains sulphur and not phosphorus</p>	1												
3	<p>Match the Column I AND II</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Column I</th> <th>Column II</th> </tr> </thead> <tbody> <tr> <td>P) Malaria</td> <td>i) Plasmodium</td> </tr> <tr> <td>Q) Ringworm</td> <td>ii) Rhino virus</td> </tr> <tr> <td>R) Cold</td> <td>iii) Retrovirus</td> </tr> <tr> <td>S) AIDS</td> <td>iv) Filarial worm</td> </tr> <tr> <td>T) Elephantiasis</td> <td>v) Microspore</td> </tr> </tbody> </table> <p>A) P-i), Q- iii), R-ii), S-iv), T-v) B) P-i), Q-iv), R-ii), S-iii), T-v) C) P-i), Q-v), R-ii), S-iii), T-iv) D) P-ii), Q-v), R-iii), S-iv), T-i)</p>	Column I	Column II	P) Malaria	i) Plasmodium	Q) Ringworm	ii) Rhino virus	R) Cold	iii) Retrovirus	S) AIDS	iv) Filarial worm	T) Elephantiasis	v) Microspore	1
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4	<p>Heroin is a depressant, odourless, bitter and crystalline compound. It is extracted from latex of:</p> <p>A) Cannabis sativa B) Claviceps purperia C) Papever somniferum D) Atropa bellodona</p>	1										
5	<p><i>Bacillus thuringiensis</i> is used for</p> <p>A) Fermentation of beer B) Bio pesticide C) Antibiotic D) Pesticide</p>	1										
6	<p>Match the following list of bioactive substances and their roles</p> <table border="1" data-bbox="209 745 1262 947"> <thead> <tr> <th>Bioactive Substance</th> <th>Role</th> </tr> </thead> <tbody> <tr> <td>A. Statin</td> <td>(i) Removal of oil stains</td> </tr> <tr> <td>B. Cyclosporin A</td> <td>(ii) Removal of clots from blood vessels</td> </tr> <tr> <td>C. Streptokinase</td> <td>(iii) Lowering of blood cholesterol</td> </tr> <tr> <td>D. Lipase</td> <td>(iv) Immuno-suppressive agent</td> </tr> </tbody> </table> <p>Choose the correct match.</p> <p>A) A-(ii), B-(iii), C-(i), D-(iv) B) A-(iv), B-(ii), C-(i), D-(iii) C) A-(iv), B-(i), C-(ii), D-(iii) D) A-(iii), B-(iv), C-(ii), D-(i)</p>	Bioactive Substance	Role	A. Statin	(i) Removal of oil stains	B. Cyclosporin A	(ii) Removal of clots from blood vessels	C. Streptokinase	(iii) Lowering of blood cholesterol	D. Lipase	(iv) Immuno-suppressive agent	1
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7	<p>Assertion: When some organ in our body fails to function, transplantation is successful from any donor. Reason: The body is able to differentiate self and non self and the cell-mediated immune response is responsible for graft rejection.</p> <p>A) Both assertion and reason are true, and reason is the correct explanation of assertion. B) Both assertion and reason are true, but reason is not the correct explanation of assertion. C) Assertion is true but reason is false. D) Reason is true and Assertion is false.</p>	1										
8	<p>Assertion: Beer and wine are called soft liquors while gin, rum, etc. are hard liquors. Reason: Beer and wine are made without distillation.</p> <p>A) Both assertion and reason are true, and reason is the correct explanation of assertion. B) Both assertion and reason are true, but reason is not the correct explanation of assertion. C) Assertion is true but reason is false. D) Both assertion and reason are false.</p>	1										

SECTION B		
9	A DNA segment has a total of 2,000 nucleotides, out of which 520 are adenine containing nucleotides. How many purines bases this DNA segment possesses?	2
10	Explain the relationship between B-lymphocytes and T-lymphocytes in developing an immune response.	2
11	Your advice is sought to improve the nitrogen content of the soil to be used for cultivation of a non-leguminous terrestrial crop. (a) Recommend two microbes that can enrich the soil with nitrogen. (b) Why do leguminous crops not require such enrichment of the soil?	2
SECTION C		
12	A) Identify strands 'A' and 'B' in the diagram of transcription unit given above and write the basis on which you identified them. B) Write the functions of RNA polymerase-I and RNA polymerase-III in eukaryotes.	3
13	A) Name the molecule 'X' synthesised by 'i' gene. How does this molecule get inactivated? B) Which one of the structural genes' codes for β -galactosidase? C) When will the transcription of this gene stop?	3
14	A) Name the protozoan parasite that causes amoebic dysentery in humans. B) Mention two diagnostic symptoms of the disease. C) How is this disease transmitted to others?	3
15	A) Explain the process of sewage treatment. B) Secondary treatment of the sewage is also called biological treatment. Justify this statement	3

SECTION D		
16	<p>Following is the process of curd formation from milk.</p> <div style="text-align: center; margin-bottom: 5px;"> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Milk is incubated with curd</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 5px auto;">LAB grows in milk</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 5px auto;">(a) production</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 5px auto;">Coagulation and digestion of milk protein</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 5px auto;">Improved nutritional quality by (b)</div> </div> <p>(i) What does (a) and (b) signify in the flow chart. (ii) Expand the word LAB. (iii) Milk starts to coagulate when LAB is added to warm milk as a starter. Mention any other two benefits that LAB provides.</p>	4
SECTION E		
17	<p>A) How does a Human Immunodeficiency Virus (HIV) replicate in a host? B) How does a HIV-infected patient lose immunity? C) List any two symptoms of this disease.</p>	5
18	<p>A) Explain the process of DNA replication that occurs in a replication fork in E. coli. B) How are translational unit and untranslated regions in mRNA different from each other?</p>	5
THE END		

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