



Indian Institute of Technology Bhilai

Mid-semester Exam February 2025

BML 101- Biology for Engineers

Duration: 2 hours

Maximum Marks: 50

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Section A

1. Fill in the blanks.

2x5=10

- (a) Earth originated years ago, while origin of life occurred years ago.
- (b) is the simplest amino acid while is the largest.
- (c) Five kingdoms of life are:,, fungi, plantae and animalia.
- (d) Starch contains bond in linear and bond in branched chain structures.
- (e) is present only in animal cells, while is a plant cell organelle.

2. Comment briefly on the following:

1 x 5 = 5

- (a) Water is a polar molecule.
- (b) Solid water is less dense than water.
- (c) Five kingdoms of life
- (d) Enantiomer
- (e) Dihydroxyketone does not have a chiral carbon

3. Define any five:

1 x 5 = 5

- (a) Induced fit model
- (b) Genetic code
- (c) Stereoisomer
- (d) Wobble hypothesis
- (e) Endosymbiosis theory
- (f) Fimbriae

4. Draw any five:

1 x 5 = 5

- (a) Cholesteryl ester
- (b) Glycerol
- (c) AMP
- (d) Alanine
- (e) Omega-3 fatty acid
- (f) A pyrimidine

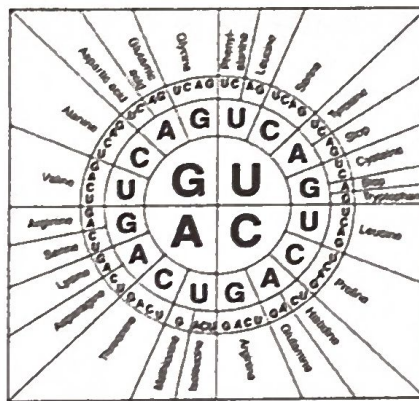
Section B

Answer any five questions.

5 x 5 = 25

- 5. What are lipids? Describe their structure and classification in detail.
- 6. Describe the famous experiment with diagrams discussing abiotic production of amino acids.
- 7. Provide a brief description of the tertiary structure of proteins.

8. Discuss three major classes of ribonucleic acids with short description of functions.
9. Please write a short essay on the statement, "proteins are workhorses of the cells" using appropriate examples.
10. Elaborate:
 - (i) Alpha helix
 - (ii) Amylopectin
 - (iii) Triglyceride
 - (iv) Waxes
 - (v) Saponification
11. What will be the code of amino acid chain synthesized from:
 AUG/UGG /UCC/CCA/ AUG/AUA/CAA/UAA/ CCU/AAC/UGA/GAC



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