

U.G. 1st Semester Examination - 2021**BOTANY****Course Code : BBOTCCHC 102****Course Title: Biomolecules and Cell Biology**

Full Marks : 30

Time : 2 Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer any **ten** questions: 1×10=10
- What is covalent bond?
 - What is zwitterions?
 - Which law of thermodynamics refers to a state known as absolute zero?
 - What is chiral center?
 - What is K_m ?
 - What is prosthetic group?
 - What is cytoskeleton made up of?
 - Give an example of essential fatty acids.

- What is nuclear lamina?
- What are flippases?
- Write down two marker enzymes of mitochondria.
- What is LDL receptor?
- What is SRP?
- What do you mean by ribozyme?
- What is G_0 phase?

2. Answer any **five** questions: 2×5=10
- Write down the structure of triglyceride.
 - What do you mean by epimers and anomers? Give examples.
 - How many checkpoints are in the cell cycle?
 - Draw a labelled diagram of tRNA.
 - What is endosymbiotic theory?
 - What do you mean by protein glycosylation?
 - An organism has defect in ATP synthase gene. Which membrane transport will be affected and why?
 - Mitochondrial inner membrane is analogous to thylakoid membrane. Justify your answer.

3. Answer any **two** questions: $5 \times 2 = 10$
- a) What do you mean by endergonic reactions?
Briefly explain how ATP contributes as energy
currency molecule. $2+3$
- b) What is V_{\max} ? What is KDEL sequence?
Describe its role in protein targeting. $2+1+2$
- c) Write down the name of simplest sugar and
amino acid. Write down the structure of B-
DNA. How do you distinguish it from Z-DNA?
 $1+1+2+1$
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