

U.G. 3rd Semester Examination - 2020

Molecular Biology

[PROGRAMME]

Course Code : MBG-101-T-CC1

Full Marks : 40

Time : 2½ 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 **five** of the following : 2×5=10
- Name two essential amino acids.
 - Write the role of accessory pigments in photosynthesis.
 - Name a disease caused from deficiency of Vitamin C and Vitamin B1.
 - Draw Howarth projection formula of Trehalose. Name its components.
 - What are reducing sugars? Give an example.
 - Write the overall balance sheet of ATP in glycolysis.
 - Write down the four important functions of phospholipids.
 - Name one enzyme of urea cycle and state its function.

2. Answer any **two** of the following: 5×2=10
- What is gluconeogenesis? Where does it occur in mammals? State its significance. 2+1+2=5
 - What is peptidoglycan? What is its function? Why phenylketonuria occurs? 2+1+2=5
 - Give a flow chart depicting major steps of Cholesterol biosynthesis from acetate.
 - State four important features of hormones. Describe mode of action of thyroid hormones. State two differences between hormones and enzymes. 2+2+1=5
3. Answer any **two** of the following: 10×2=20
- Describe the chemical reaction of Osazone formation with an example. Name a microbial source of Streptomycin. Write a short note on Chitin. What is coenzyme? Give one example. What is PUFA? Give an example. 3+1+2+1+1+1+1=10
 - Classify enzymes according to the types of reactions they catalyze inside cell. Give an example of each class. 10
 - How Schiff base is formed in transamination reaction? How K_m can be used to compare enzyme activities? Define competitive and non-competitive enzyme inhibition. Compare K_m and

[Turn over]

V_{\max} of competitive and non-competitive enzyme inhibition. What is mutarotation?

$$2+2+2+2+2=10$$

- d) Give a brief account of light reaction of photosynthesis. What is salvage of purines? How HGPRT works in this pathway? Name one cardiac glycosides.

$$5+1+1+2+1=10$$
