

**QP CODE: 24900024** 

Reg No:	••
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### MAHATMA GANDHI UNIVERSITY, KOTTAYAM

# FIRST SEMESTER MGU-UGP (HONOURS) REGULAR EXAMINATION NOVEMBER 2024

#### **First Semester**

# Discipline Specific Core Course - MG1DSCBCH100 - BIOCHEMISTRY-THE SCIENCE OF LIFE

(2024 ADMISSION ONWARDS)

Duration: 1.5 Hours Maximum Marks: 50

Remember (K), Understand (U), Apply (A), Analyse (An), Evaluate (E), Create (C), Interest (I), Appreciation (Ap), and Skill (S)

Students should attempt at least one question from each course outcome to enhance their overall outcome attainability.

[Learning Domain][CO No(s)]

#### Part A

Multiple Choice Questions Answer all questions Each question carries 1 mark

1	Whi	ich of the following hetero polysacc Chitin	hario b)	les plays a role in blood clotting? Heparin	[U]	[2]
	c)	Cellulose	d)	starch		
2	The a)	secondary structure of protein is sta Hydrogen bond	abiliz b)	ed by Disulfide bond	[U]	[3]
	c)	Peptide bond	d)	All of these		
3	Wha	at type of bond links nucleotides in	a DN	IA strand?	[K]	[4]
	a)	Hydrogen bond	b)	Ionic bond		
	c)	Phosphodiester linkage	d)	Peptide bond		
4	Cho	olesterol is categorized as which type	e of l	ipid?	[An]	[4]

	a) Phospholipid	b) Glycolipid		
	c) Steroid	d) Fatty acid		
5	In pure water, the concentrations of Hama) 1.0 M	and OH <sup>-</sup> are b) Equal and both are $1.0 \times 10^{-7}  \text{M}$	[U] ⁄[	[1]
	c) $H^+$ is 1.0 M, $OH^-$ is 1.0 x $10^{-4}$ M	d) OH <sup>-</sup> is 1.0 M, H <sup>+</sup> is 1.0 x 10 <sup>-14</sup> M		
				$(5\times1=5)$
	Ansv	Part B In The Blanks wer all questions stion carries 2 marks		
6	In heteropolysaccharides, the monosaccbonds.	haride units are linked by	[U]	[2]
7	The form of DNA is the most stable and common form under physiological conditions.			
8	A buffer solution is a mixture of a weak acid and its			
9	B-DNA has approximately	base pairs per turn of the helix	[U]	[4]
10	is the storage form of gluc	ose in animals	[U]	[2]
			(	$5 \times 2 = 10)$
	Answe	Part C Answer Questions or any 5 questions stion carries 3 marks		
11	Evaluate the role of phosphodiester link of nucleic acid structures.	ages in the formation and stability	[E]	[4]
12	Draw the structure of water		[K]	[1]
13	What are the two main components of structure?	tarch, and how do they differ in	[U]	[2]
14	How does the bicarbonate buffer system	n help regulate pH in blood plasma?	[K]	[1]
15	Discuss the relationship between pH an	d pOH in an aqueous solution?	[An]	[1]
16	Explain Epimerization with suitable exa	amples?	[U]	[2]
17	What is a zwitterion?		[K]	[3]

 $(5\times3=15)$ 

#### Part D

### Short Essay Type Questions Answer any 4 questions Each question carries 5 marks

18	What are heteropolysaccharides, and how do they differ from homopolysaccharides?	[U]	[2]
19	Discuss the contributions of James Watson and Francis Crick to our understanding of the DNA structure.	[An]	[4]
20	Describe the structural organization of proteins.	[U]	[3]
21	Describe the structure of lecithin (phosphatidylcholine). How are its components organized, and what role does each component play in its function?	[U]	[4]
22	Explain what is biochemistry, and why is it considered a pivotal field in the life sciences?	[U]	[1]
23	Discuss in detail about a) Stereoisomers b)Epimers. c)Anomers	[U]	[2]

 $(4\times 5=20)$ 

## END OF THE QUESTION PAPER

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