

[THIS Q PAPER CONSISTS OF TWO PAGES]

Roll No: _____

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BSc (Hons)/ (Hons with Research) Biochemistry
Examination: Semester III Examination, 2024

Paper Code: BBC DSC 301

Paper Title: Cell Biology

Time: 2½ h

Max Marks: 60

Note: This paper has 3 Sections, A, B, and C. Attempt all three sections. Section A: Answer all the questions; Section B: Answer any two; Section C: Answer all the questions, each question in this section has an internal choice .

Abbreviations: CLO: Course Learning Outcome, PLO: Program Learning Outcome, BTL: Blooms Taxonomy (BT) Level: BT Level 1 - Remember, BT Level 2 - Understand, BT Level 3 - Apply, BT Level 4 - Analyse, BT Level 5 - Evaluate, BT Level 6- Create.

SECTION A**OBJECTIVE TYPE QUESTION****Attempt All questions**

(1x12=12 Marks)

Q. No.		BTL	CLO	PLO
1 (a)	Answer the followings as indicated.			
i.	Receptor tyrosine kinases can transduce a signal across the plasma membrane.	2	3	4
ii.	G-protein linked receptors have seven transmembrane domains.	3	1	3
iii.	Clathrin-mediated endocytosis is also known as Receptor-mediated endocytosis.	1	3	4
iv.	Confocal microscopy produces 3-D structures.		5	3
v.	Phospholipids in plasma membrane routinely show diffusion in the plane of the bilayer.	1	2	3
vi.	Ribosomes perform similar function in plant and animal cell.	2	2	3
vii.	Nuclear pore complexes are non-gated channels.	2	5	3
viii.	SRP receptor is present on the mitochondrial outer membrane.	3	3	3
ix.	Function of Golgi bodies in plants is to translocate ribozymes	1	1	3
x.	Intake of liquid food by formation of food vacuoles is called imbibition.	1	1	3
xi.	The bead like structure of chromatin is the solenoid.	2	2	3
xii.	In glycoproteins, carbohydrate is attached via aspartic acid.	3	5	3

SECTION B

LONG ANSWER QUESTIONS
Attempt Any TWO Questions
(12x2=24 Marks)

Q. No.		BTL	CLO	PLO
2	Describe in detail			
a)	With the help of labelled diagrams describe the fluid mosaic model of cell membrane.	2	3	3
b)	With the help of suitable examples, describe the mechanism of active and passive transport.	3	4	4
c)	Describe the cellular mechanism(s) underlying cell death.	4	2	3
d)	With the help of labelled diagram, describe the voltage clamp technique to study conductance across membrane.	5	1	3

SECTION C

SHORT ANSWER QUESTIONS
Attempt All Questions
(4x6=24 Marks)

Q. No.		BTL	CLO	PLO
3	Write short answers.			
a)	Enumerate the differences between mitosis and meiosis. OR Enumerate the differences between a tumor cell and a normal cell.	3	1	4
b)	Enumerate differences between a prokaryotic and eukaryotic cell. OR Discuss differences & similarities b/w chloroplast & mitochondria.	3	2	4
c)	Draw the ultra-structure of nuclear pore complex and label it. OR Describe the technique of flow cytometry.	3	3	4
d)	Describe the function of tumor suppressor genes. OR Discuss the stem cells and their types.	3	4	5
e)	Comment on the structure-function relationship in GPCR. OR Describe sub-cellular fractionation.	3	5	3
f)	Describe structure and function of nuclear pore complex. OR Briefly describe the role of glycosylation in protein targeting.	3	2	5

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END OF THE QUESTION PAPER

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