



WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 2nd Semester Examination, 2021

ZOOACOR04T-ZOOLOGY (CC4)

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.*

1. Answer any **eight** questions from the following: 2×8 = 16
- (a) Differentiate between active and passive transport.
 - (b) Define Gap Junctions.
 - (c) State the semi-autonomous nature of mitochondria.
 - (d) Differentiate between pinocytosis and phagocytosis.
 - (e) Define first messenger and second messenger in a cell signaling pathway.
 - (f) Define apoptosis. Differentiate it with necrosis.
 - (g) What is GPCR? Write down its subunits and their functional aspects.
 - (h) State the role of lysosome in cellular functioning.
 - (i) What do you know about linker histone.
 - (j) What do you mean by PLP model of plasma membrane?
 - (k) What are RTK and non-RTK receptors?
 - (l) What are caspase and anti-apoptotic factors?
 - (m) Write and draw the structure of myosin filaments.
 - (n) State the constituents of nucleosome core particle.
 - (o) What is Virion?
2. Answer any **three** questions from the following: 3×3 = 9
- (a) Differentiate between mitosis and meiosis. Why meiosis is called reductional division? 1+2
 - (b) What is rough ER? State its role in protein synthesis. What ER is closely positioned to nucleus? 1+1+1
 - (c) Name one nuclear receptor and membrane receptor in cellular signaling. Elaborate signaling pathway (any **one**). 1+2
 - (d) Portray an account of Na⁺/K⁺ pump or Na⁺/K⁺ ATPase activity with suitable diagram. 3

- (e) Describe the sliding filament mechanism for contraction- relaxation cycle of actin and myosin microfilaments with diagramme. 3
- (f) Describe the role of cyclin-cdks in cell cycle. 3

3. Answer any **three** questions from the following: $5 \times 3 = 15$
- (a) Why mitochondrion is called the power house of the cell? Elaborate the role of F_0-F_1 particle in mitochondrial respiratory chain. $1\frac{1}{2} + 3\frac{1}{2}$
- (b) Furnish an account on the ultrastructure of Golgi complex with suitable diagram. 5
- (c) Discuss the role of cAMP as a secondary messenger in signal transduction pathway. What are ionophores? 4+1
- (d) Explain the extrinsic pathway of the programmed cell death. Distinguish between constitutive and facultative heterochromatin. 3+2
- (e) What do you mean by negative regulator of cell cycle? State the role of Rb and p53 in cell cycle regulation. 1+4
- (f) Delineate the structure of nuclear lamina with suitable diagram. What is the major function of the nuclear envelope? 4+1

N.B. : *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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