

B.Sc. ZOOLOGY SESSIONAL EXAMINATION, 2023

(MARKS=30/ TIME=1 hr.) PAPER NAME: CELL BIOLOGY PAPER CODE: ZOO-HC-2026

Q1. Answer the following:

1x5=5

- a) The light stained and diffused chromatin is known as
 - 1. Heterochromatin
 - 2. Euchromatin
 - 3. Chromatin
 - 4. None of the above
- b) Nucleosome is made up of
 - 1. DNA and Histone Core proteins
 - 2. DNA, Histone Core proteins and linker H1
 - 3. RNA and Histone Core proteins
 - 4. RNA, Histone Core proteins and linker H1
- c) What are cilia and flagella of eukaryotic cells made of?
 - 1. Microtubules
 - 2. Intermediate filaments
 - 3. Microfilaments
 - 4. Tubulin oligomers
- d) What is the name of the region where double-stranded single circular DNA is found in the prokaryotic cell?
 - 1. Nucleolus
 - 2. Nuclein
 - 3. Nucleus
 - 4. Nucleoid
- e) If a plant cell is placed in a hypertonic solution, its volume will _____.
 - 1. Swell
 - 2. Shrink
 - 3. It will burst
 - 4. No change in volume

Q2. Answer **any five** from the following:

2x5=10

- 1. State two major differences between prokaryotes and eukaryotes.
- 2. Discuss the structure of a phospholipid with supporting diagram.
- 3. Differentiate between primary and secondary active transport.
- 4. Discuss the structure of the Golgi apparatus. Mention its functions.
- 5. What are first messengers and second messengers in cell signaling?
- 6. What are tight junctions? Mention their functions.
- 7. What are the transport proteins that help in facilitated diffusion?

Q3. Write short notes on **any one** from the following:

5x1=5

- 1. Nuclear Pore Complex
- 2. Microtubules
- 3. Gap Junctions

Q5. Answer **any one** from the following:

10x1=10

- 1. Describe the working of the Sodium-potassium pump.
- 2. Elucidate the 'Fluid Mosaic Model' of plasma membrane structure.
- 3. Elucidate the role of GPCR, G-proteins and cAMP in cell signaling.