

Sl. No. of Ques. Paper : 1770 **GC-3**
Unique Paper Code : 32581102
Name of Paper : Cell and Radiation Biology
Name of Course : B.Sc. (Hons.) Biomedical Sciences (CBCS)
Semester : I
Duration : 3 hours
Maximum Marks : 75

(Write your Roll No. on the top immediately on receipt of this question paper.)

Answer five questions in all. Question No. 1 is compulsory.
Give illustrations and examples wherever required.
Attempt all subparts of a question together.

1. (a) Briefly explain (any three):

- (i) Viroids
- (ii) RBC ghost
- (iii) Radioisotopes
- (iv) Cell cycle check points
- (v) Chromatin.

3×2=6

(b) Differentiate between: (any three)

- (i) Rate zonal and isopycnic density gradient centrifugation
- (ii) Nucleus and nucleoid
- (iii) GM counter and Scintillation counter
- (iv) Carrier and channel proteins.

3×3=9

(c) State True or False and justify your answer (any two):

- (i) Facilitated diffusion requires ATP
- (ii) Chromosomes have only DNA and histones
- (iii) Phosphorylation controls both activation and inhibition of Cdk 1.

2×2=4

2. Write short notes (any four):

- (i) Structure of nuclear pore complex
- (ii) Biomedical applications of radioisotopes

- (iii) Microtubules
- (iv) P-type transporter
- (v) Lampbrush chromosomes. 3·5×4=14
3. (a) Give well labelled diagrams for (any two):
- (i) Golgi apparatus
- (ii) Effect of hypotonic, isotonic and hypertonic solutions on RBCs
- (iii) Chloroplast. 4×2=8
- (b) What is endosymbiont theory? Give features of mitochondrial genome. 6
4. (a) Design an experiment to show the mobility of membrane proteins. 5
- (b) Discuss structure and function of gap junction. 5
- (c) What are lysosomal storage diseases? Discuss. 4
5. (a) With the help of a diagram explain post-translational protein transport in ER. 5
- (b) Explain the role of treadmilling and ATP in microfilament polymerization. 5
- (c) Explain hazards of using radioisotopes. 4
6. (a) Give significance of SER. 4
- (b) Diagrammatically describe Prophase-I of meiosis. 5
- (c) Explain mechanisms of CDK regulation. 5