This question paper contains 2 printed pages.

Your Roll No. .....

Sl. No. of Ques. Paper	: 2068	**GC-3**
Unique Paper Code	: 32531326	
Name of Paper	: Cell Biology	
Name of Course	: B.Sc. (Hons.) Microbiology (CBCS)	
Semester	: III	
Duration	: 3 hours	
Maximum Marks	: 75	

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

*Attempt **five** questions in all. All questions carry equal marks.*

1. (a) Define the following (any *six*):

   (i) Tumor suppressor gene

   (ii) Uniport

   (iii) Autocrine Signaling

   (iv) Phagocytosis

   (v) Lamins

   (vi) Synaptonemal complex

   (vii) Signal transduction. 2×6=12

   (b) Expand the following abbreviations (any *six*):

   (i) NLS

   (ii) CRE

   (iii) GABA

   (iv) Cdk

   (v) PDGF

   (vi) JAK

   (vii) GPCR. 0·5×6=3

2. Write short notes on any *three* of the following:

   (a) Golgi complex

   (b) Plasmodesmata

   (c) Lipid rafts

P. T. O.

[illegible] gas expands isothermally to four times its initial

(d) ABC transporter. 5×3=15

3. (a) Compare the following (any *three*):
   (i) Adhesion, tight and Gap junctions
   (ii) Actin filaments, Intermediate filaments and Microtubules
   (iii) Apoptosis, Necrosis and Authophagy
   (iv) Archaeal, Bacterial and Fungal Cell wall.

   (b) Do homologous chromosomes have identical genes? Explain. 3

4. (a) Where are the following enzymes located in the cell (any *two*):
   (i) Acid phosphatase
   (ii) Catalase
   (iii) Rubisco. 1×2=2

   (b) Give examples of two DNA viruses implicated in etiology of cancer. 2

   (c) Give an example of a chemical carcinogen. 1

   (d) Write the contributions of following scientists (any *five*):
   (i) Shinya Yamanaka
   (ii) Christian de Duve
   (iii) Sir Paul Nurse
   (iv) Warren and Marshall
   (v) Singer and Nicolson
   (vi) Judah Folkman. 2×5=10

5. (a) Explain the fluid mosaic model of cell membrane using a well labelled diagram. 5

   (b) Discuss the phases of eukaryotic cell cycle with the help of suitable diagram. 5

   (c) Enumerate the steps involved in the production of induced pleuripotent stem cells. Discuss their applications. 5

6. (a) Discuss the properties of cancer cells. 6

   (b) Comment on the role of monoclonal antibodies as therapeutic agents against cancer. 3

   (c) Discuss the major categories of cell surface receptors involved in cell signaling. 6