

**Model Answers**  
**M.Sc. Biotechnology**  
**(I Semester Examination-2014)**  
**LBTM-101: Molecular Cell Biology**

1. Objective type questions

<b>Q</b>	1	2	3	4	5	6	7	8	9	10
<b>A</b>	c	d	d	d	b	a	a	d	c	a

2. Describe different phases of cell cycle. Describe various checkpoints in details. Write different cyclin and cyclin dependent kinases that regulates the restriction points.
3. Describe the various components of GPCR in details with suitable diagram. Discuss different ligand that bond activates GPCR. Also mention how downstream signalling take place through GPCR.
4. Define signal sequences present in protein during translation. Also describe how nuclear proteins are targeted using signal sequences. With suitable diagram discuss various components involved in targeting pf nuclear protein.
5. Discuss her2 and EGF receptor protein, Molecular mechanism that lead to development of cancer, give suitable diagram of both activated and inactivated receptor.
6. Total cell density:  $0.4 \times 10^6$  cells/ml; Live cell density:  $0.4 \times 10^6$  cells/ml; Viability: 80%
7. (a) Define cyclin cdk complex. Give example of cyclin cdk complex in different checkpoints and their role on regulating cellular checkpoints. (b) Describe immunohistochemistry techniques, its procedure and application.
8. (a) Define ABC staining. Describe its procedure with suitable diagram. Mention application and advantages over other staining techniques (b) Describe insulin receptor. Discuss the various components involved in insulin signalling with suitable diagram and flowchart.

*Dhanu*