

Short Answer Question (10 points for each question)

1. How do secretory proteins translocate across the ER membrane?
2. What is autophagy and its role in cell fate?
3. How are SNARE proteins thought to bring about specific membrane fusion?
4. Describe the mechanism of cell migration.
5. (A) Define stem cells. (B) Which of the following cells are stem cells: (a) fertilized egg, (b) intestinal crypt cell, (c) granulocyte-macrophage colony-forming cell (GM-CFC)?
6. What is the role of mitochondria in apoptosis?
7. Matching cyclins and CDKs in different stages of cell cycle:

| CDK | Cyclins | Functions |
|-----|---------|-------------------------------|
| | | Mitosis |
| | | Entry into cell cycle S phase |
| | | G1 entry into cell cycle |

8. Describe what G protein-coupled receptor (GPCR) is and give one example to show its physiological significance.
9. Give one example to show the signal pathways within cells are coordinated to regulate cell responses.
10. What are the hallmarks of cancer?

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