

Five Year Integrated M.Sc. Examination, 2019

Semester - IV

Course: LS-2-4-1

(Cell Communication and Cell Signalling)

Time: Three Hours

Full Marks: 60

Questions are of value as indicated in the margin.

Answer **Question No.1** and **any two** from **Question No. 2 to 4**
and another **three** from **Question No. 5 to 9**.

1. Write short notes on **any ten** of the following: 2x10=20
 - a) Cadherin
 - b) Function of Tight junction.
 - c) Importance of MTOC.
 - d) Structure of Laminin.
 - e) Major classes of membrane transporters.
 - f) Role of Integrin in Cytoskeleton-ECM communication.
 - g) Property of p53 that enables it to prevent the development of cancer.
 - h) Oncogene
 - i) Type 1 Interferon
 - j) Second Messenger
 - k) Role of insulin and glucagon to maintain blood glucose level.
 - l) Feedback control of hormone secretion.
 2. Bcl / Bax ratio decides the fate of cell – Justify. 5
 3. Cancer is a disease of deregulated cell cycle – Justify. 5
 4. Write down the names of two hormones secreted from anterior pituitary, their function and one deficiency disease caused by each one of them. 5
 5. a) Illustrate the structural assembly of microtubules. What is their role in vesicular trafficking?
b) Distinguish between Facilitated diffusion and Co-transport. (3+4)+3=10
 6. Why the toll-like receptors (TLRs) are named so? Describe their general structure with proper diagram. Discuss their role for collaborative functioning between innate and adaptive immunity in vertebrates. 1+4+5=10
 7. a) What are the major types of immune system in plants? Briefly discuss the genes coding PRRs in plants.
b) Discuss the role of phagocytes in adaptive immunity in vertebrates. (2+3)+5=10
 8. A cell line is treated with nocodazole (spindle inhibition agent). This leads to a change in the cellular homeostasis. Describe the changes with explanation and illustration. 10
 9. Give an account of the mechanism of hormone action through G-protein coupled receptor (GPCR) pathway. 10
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