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First Year M. Pharm Degree Examination - NOVEMBER 2015

[Time: 3 Hours] [Max. Marks: 100]

Molecular Biology

(Revised Scheme 4)

Q.P. CODE: 9351

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary.

LONG ESSAY (Answer any TWO) **2 X 20 = 40 Marks**

1. Explain various phases of cell cycle with a diagrammatic representation. Enumerate the various checkpoints in cell cycles. Add a note on regulators and modifiers of cell cycle. (10+4+6)
2. What is gene expression? Explain the process of gene expression in eukaryotic cell. Enumerate the genetic elements that control the gene expression. (2+12+6)
3. List various cell signaling and communication pathways between cells. What are biosensors? Explain the construction and applications of biosensors. (4+2+8+6)

SHORT ESSAY (Answer any FIVE) **5 X 10 = 50 Marks**

4. a) Explain the applications of rDNA technology.
   b) Write a note on plasma membrane transport proteins and their inhibitors. (5+5)
5. Explain the events of apoptosis. Add a note on regulators of apoptosis. (6+4)
6. What is gene mapping? Name and explain various methods of gene mapping. (2+2+6)
7. Write the principles and applications of radio-ligand binding assay. (5+5)
8. With a neat-labeled diagram, explain the structure and functions of cell membrane and mitochondria. (5+5)
9. a) Explain salient feature of various vectors used in gene therapy.
   b) Explain the principle of antisense technology. (5+5)

SHORT NOTES **2 X 5 = 10 Marks**

10. Write a note on pharmacological applications of animal tissue culture.
11. Explain in brief the concept of human genome project.

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