Code No: R050212303 **Set No. 1**

II B.Tech I Semester Regular Examinations, November 2006
CELL BIOLOGY
(Bio-Technology)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. Compare and contrast the properties and strategies of eukaryotic and prokaryotic cells in terms of cell size, compartmentalization, nuclei, internal membranes, DNA and cell specialization. [16]
2. Describe the following terms - carbohydrate; lipid; protein; enzyme; coenzyme; allosteric factor; holoenzyme; apoenzyme [16]
3. Discuss each of the following:
   (a) the structure and role of the cell membrane
   (b) the structure and role of mitochondria. [16]
4. Name and Describe Three types of passive transport AND Three types of active transport. [16]
5. Briefly explain the following stages of a cell cycle:
   (a) S phase
   (b) G1 phase
   (c) G2 phase
   (d) Mitotic phase. [4+4+4+4]
6. Write short notes on:
   (a) Importance of stem cells in body
   (b) Pattern of stem cell division. [8+8]
7. List the general types of receptor systems and differentiate between those most often used by neurotransmitters, hormones and growth factors. [16]
8. What are the two major types of hormone producing cells? Compare exocrine and endocrine glands, especially considering where they respectively release their products. What part/function of the pancreas is an exocrine gland; what part/function an endocrine gland? What kinds of chemical signals trigger the release of hormones? [16]

⋆ ⋆ ⋆ ⋆ ⋆

Code No: R050212303 **Set No. 2**

II B.Tech I Semester Regular Examinations, November 2006
CELL BIOLOGY
(Bio-Technology)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. Enumerate the characteristics of a living Cell. [16]
2. What property allows carbon compounds to exist in a number of forms and what properties of a carbon atom are critical to life? [16]
3. Compare the properties of the inner and outer mitochondrial membranes; intermembrane space and matrix. In what ways are peroxisomes similar to mitochondria? In what way are they unique? [16]
4. Write notes on the followings:
   (a) Endocytosis
   (b) Exocytosis
   (c) Phagocytosis
   (d) Pinocytosis. [16]
5. What is meant by a cell cycle check point? What is its importance? How does a cell stop its progress at one of these check points? [16]
6. Briefly explain the role of Cytoplasmic determinants during cell differentiation.[16]
7. Discuss about the receptors that bind to DNA. [16]
8. List the major human endocrine organs and their associated hormones. Add a note on their role in signaling pathway. [16]

⋆ ⋆ ⋆ ⋆ ⋆

Code No: R050212303 **Set No. 3**

II B.Tech I Semester Regular Examinations, November 2006
CELL BIOLOGY
(Bio-Technology)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. Enumerate the characteristics of a living Cell. [16]
2. Discuss the biological importance of each of the following organic compounds in relation to cellular structure and function in animals.
   (a) Carbohydrates
   (b) Proteins
   (c) Lipids
   (d) Nucleic acids. [16]
3. Describe the organization of the membranes of a chloroplast. How does this organization differ from that of mitochondria? [16]
4. Compare and contrast facilitated diffusion with active transport. [16]
5. Explain the importance of the following checkpoints:
   (a) G1 to S transition
   (b) G2 to M transition. [8+8]
6. Discuss the processes of cleavage, gastrulation, and neurulation in a mammalian embryo; tell what each process accomplishes. [16]
7. Why are some receptors present on cell surface while some are present in the cytoplasm? Explain. [16]
8. What are second messengers? What is the general action of cAMP? How is it that second messenger systems allow amplification of the signal? [16]

⋆ ⋆ ⋆ ⋆ ⋆

Code No: R050212303 **Set No. 4**

II B.Tech I Semester Regular Examinations, November 2006
CELL BIOLOGY
(Bio-Technology)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

⋆ ⋆ ⋆ ⋆ ⋆

1. Compare and contrast the properties and strategies of eukaryotic and prokaryotic cells in terms of cell size, compartmentalization, nuclei, internal membranes, DNA and cell specialization. [16]
2. Carbon is a very important element in living systems. Describe the various characteristics of the carbon atom that makes possible the building of a variety of biological molecules. [16]
3. Discuss each of the following:
   (a) the structure and role of the cell membrane
   (b) the structure and role of mitochondria. [16]
4. Write notes on the followings:
   (a) Endocytosis
   (b) Exocytosis
   (c) Phagocytosis
   (d) Pinocytosis. [16]
5. Write short notes on:
   (a) Interphase
   (b) Cytokinesis. [8+8]
6. Explain the term "determinants" in cell differentiation using suitable examples.[16]
7. Using suitable example explain cytosolic receptors. [16]
8. How are G-proteins involved in signal transduction? [16]

⋆ ⋆ ⋆ ⋆ ⋆