

Department of Biochemical Engineering and Biotechnology
IIT Delhi

Major Examination

28. 11. 2006

BE1110

Marks 40

Time 2 Hours

1. Answer in single word or a sentence at most (5x1=5)
 - a) Name two second messengers involved in cell-cell signaling
 - b) What is the major difference between DNA and RNA polymerase?
 - c) What are plasmids and vectors?
 - d) What attributes should a chemical system possess to be considered alive?
 - e) Name the different kinds of cell surface receptors
2. Describe (with diagram wherever necessary) (3x5=15)
 - a) G-protein linked receptors and their major role in cellular processes
 - b) Oxidative phosphorylation and its role in ATP synthesis
 - c) Semiconservative mode of DNA replication and its experimental proof
3. State the (Bio)chemical reactions catalyzed by the following enzymes along with their major application in process industries (2.5x2=5)
 - a) Alk. Protease
 - b) Cellulase
3. Describe any one of the following (1x5=5)
 - a) Bacterial Flagellar movement
 - b) Endosymbiotic pathway of cell evolution
 - c) Protein folding problem
 - d) Role of nucleic acids in life processes
4. Write short notes on each of the following (5x2=10)
 - a) A nerve cell
 - b) Action potential
 - c) Synapse
 - d) Conversion of chemical signal back to electrical signal in nerve impulse transmission
 - e) Examples of excitatory and inhibitory neurotransmitters.