

Code No: 111AM**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD****B.Tech I Year Examinations, June – 2014****FUNDAMENTALS OF BIOLOGY****(Biotechnology)****Time: 3 hours****Max. Marks: 75****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

- 1.a) Describe Biological Oxygen Demand. [2m]
b) Discuss major useful and harmful effects of algae. [3m]
c) What kind of plant regulator can be used for
i) Induction of rooting ii) Quick ripening of a fruit. [2m]
d) Describe the major differences between oxygenic and anoxygenic photosynthesis. [3m]
e) Describe Oxygen Dissociation Curve. [2m]
f) Match the following: [3m]
i) Hydrolysis of starch 1) Lipases
ii) Digestion of fat 2) Parotid
iii) Salivary gland 3) Amylases
g) Describe various steps of protein synthesis. [2m]
h) Enumerate major enzymes involved in r DNA technology. [3m]
i) Define SCP with one commercially available example. [2m]
j) Define transgenic animal with two examples. [3m]

PART- B

- 2.a) Give an overview of five kingdom classification.
b) Give a detailed account of biogeochemical cycles.
- OR**
- 3.a) Define biodiversity and describe its most important types at all levels of biological organization.
b) Compare prokaryotes and eukaryotes.
- 4.a) Write in detail about cyclic and non cyclic photophosphorylation.
b) Describe the concept of growth in plants; also mention various types of Meristems.
- OR**
- 5.a) Give an account of plant growth regulators with their types and mode of action.
b) Compare and contrast bacterial and plant photosynthesis.
- 6.a) Enumerate the formed components in the blood with their major function.
b) Describe human neural system with its important parts and function.
- OR**
7. Compare the following:
a) Central Neural system and peripheral neural system.
b) Describe the important steps of muscle contraction.
c) Distinguish between a skeletal muscle and a cardiac muscle.

- 8.a) Describe the structure of DNA with its types.
b) Describe the important steps of recombinant DNA technology with its applications.

OR

- 9.a) Describe the process of protein synthesis.
b) Describe various enzymes involved in rDNA technology with the various steps associated with the process.

- 10.a) Describe monoclonal antibodies with the process involved in their production and applications.
b) Write a detailed note on Biofertilizers with the detailed process involved.

OR

- 11.a) Write in detail about Biosensors and bioindicators.
b) Write a detailed note on transgenic plants and animals with public concern on their production.
