82

[A-32]

No. of Printed Pages: 2

SARDAR PATEL UNIVERSITY
M. Sc. IGBT EXAMINATION, SEVENTH SEMESTER
PS07CIGEB3–ENVIORNMENTAL MICROBIOLOGY
24th April, 2015, 10.30 am to 1.30 pm

Maximum Marks: 70

Q.1 Select the right answer for the following: 1x8 = 8

(i) Population Selection r & K strategies is derived from following equation

a. $dx/dt.1/x = r-(r/K *x)$ b. $dx/dt = r-(r/K.x)$

c. $dx/dt.1/x = r-(r/K)$ d. $dt/dx.1/x = r-(r/K.x)$

(ii) FAME analysis is a method to study

a. Species Diversity b. Ecology

c. Community Diversity d. Community

(iii) Freshwater runoff and ground water seepage interfaces with marine waters is referred as _____.

a. Wetland b. Estuary c. Salt-marsh Estuary d. None

(iv) Rhizobia synthesize a Nod factor during symbiotic association with legume plant which is chemically a/an _____.

a. Protein b. Peptide c. Polysaccharide d. Oligosaccharide

(v) Which group of Actinomycetes show N_2 fixation with non leguminous plants

a. Streptomyces b. Mycorrhyzae c. Frankia d. Aspergillus

(vi) The term _____ is applied to the interaction of two or more populations that supply each other's nutritional needs but it is not an obligatory.

a. Mutualism b. Syntrophism c. Commensalism d. None

(vii) The invertebrate animals show relationship with photosynthetic microorganisms, these microbes are referred as _____.

a. Endocyano b.Zoic algae c. Endozoic algae d. Endophototrophs

(viii) A common feeding strategy found in aquatic invertebrates which ingest the microbial crust from the submerged surfaces is _____.

a. Filter Feeding b. Grazing c. Cross-feeding d. None

Q.2. Attempt any seven of the following 2x7 =14

1. Define the role of chemolithotrophs in deepsea thermal vent habitats.
2. Define ecological Niche ? How does a niche differ from a habitat?
3. Give 4 names symbiotic N_2 fixers.
4. Give two applications of alkalophiles.
5. Define three reasons for 16 s r DNA as chronological tool.
6. Draw neat labelled diagram of Nitrogenase.
7. Explain the role of Bdellovibrio as ectoparasitic microbe.
8. Explain the role of ARDRA as a tool for study of microbial community.
9. Define the difference b/w autogenic & allogenic succession.

Q.3 a. Justify: Biofilm formation is one of the most suitable examples of microbial ecosystem 6

b. Discuss in brief microbial role in context to fresh water habitat. 6

OR

b. Define diversity indices. Discuss examples of diversity indices to study structure of microbial communities. 6

Q.4 a. Define extreme thermophiles. Discuss the physiology & applications of these thermophiles. 6

b. Explain the method, application & limitation of DGGE as tool to study microbial diversity. 6

OR

b. Explain mode of adapation and application of alkalophiles 6

Q.5 a. Discuss the mechanism of nodulation process in symbiotic nitrogen fixation 6

b. Many factors can influence N_2 fixation process: Justify. 6

OR

b. Explain the role of nif & fix genes in regulation of Nitogenase enzyme 6

Q.6 a. What is lichen? How can lichens grow on rocks & tree barks? 6

b. Write a short note on mutualism among microbial population with example. 6

OR

b. How do microorganisms contribute to the nutrition of ruminant animals? 6

—X—