S4 BT - Biotech - 2
Sem IV - 2015-16

Note : 1) All questions are compulsory.
2) Draw diagrams wherever necessary.
3) Figures to the right indicate marks.

Q. 1 A) Define the following : (Any Four) 8

i) Cooperation
ii) Synergism
iii) Mutualism
iv) Ecosystem
v) Habitat
vi) Antagonism
vii) Primary Succession
viii) Synecology

B) Answer the following. (Any Two) 12

i) Explain sulfur Cycle.
ii) What is amensalism ? Elaborate with suitable example.
iii) Explain the concept of Autecology.
iv) Elaborate on antagonism with an appropriate example.

Q. 2 A) Fill in the blanks : (Any Four) 4

i) The number of Microorganisms in dirty untidy rooms are _____ than in clean rooms. (greater, lesser, equal to)
ii) Sedimentation is a _____ method of enumeration of air microflora. (quantitative, qualitative, overall)
iii) Hypocholorus acid or a hypochlorite in a final concentration of _____ million is sufficient to produce 90 to 99 percent reduction of viruses as well as bacteria. (1:10, 1:2, 1:100)
iv) The germicidal lamp is a low pressure _____ lamp. (tungsten, mercury, iron)
v) In the breakdown of _____ the first step is hydrolysis to aminoacids. (lipids, proteins, carbohydrates)
vi) Nodule formation occur exclusively on plants of the family _____ (leguminosae, malveceae, sapotaceae)
vii) In a plants during photosynthesis, the CO_2 is reduced to _____ and the H_2O is decomposed with the liberation of oxygen. (carbohydrates, proteins, lipids)
viii) During photosynthesis bacteria _____ evolve oxygen. (do, dont, some times)

B) State weather following statements are true or false. (Any Four) 4

i) The presence of micro organisms in air is of considerable importance economically and to public health.
ii) Spores are those forms of the microorganisms which are capable of resisting unfavorable conditions for long periods of time.
iii) The most important factors in maintaining or improving the granulation of soils are the presence of micro organisms and their decomposition products.
iv) Rhizobium is a non symbiotic nitrogen fixing micro organisms.

P.T.O.

v) Nitrogenase is a oxygen sensitive enzyme.
vi) Barterio chlorphylls are responsible for bacterial photosynthesis.
vii) Droplet nuclei are considered important in the transmission of pathogenic airbornemicro organisms.
viii) The depth of air borne cells decreased as humidity increased and temperature decreased.

C) Answer the following : (Any Two) 12

i) Describe enumeration of bacteria in air using Hollander and Dalla valle sampler.
ii) Explain enumeration of bocteria in air using electrostatic air sampler.
iii) Give a brief account on symbiotic nitrogen fixation.
iv) Give a brief account on Azotobacter.

Q. 3 A) Explain the following terms : (Any Three)

i) Break point chlorination
ii) Index organism
iii) Potable water
iv) Sludge
v) Sanitary Sewers
vi) Composting

B) Name the following : (Any One) 2

i) Two media used in confirmed test of bacteriological analysis of potable water.
ii) Two methods of disinfection of potable water.

C) Answer the following : (Any One) 12

i) Describe chlorination and ultraviolet rays as methods of disinfection of potable water.
ii) Give a brief account on presumptive, confirmed and completed tests for coliforms.
iii) Give the chemical and microbiological characteristics of waste water.
iv) Explain the single dwelling units with respect to treatment of waste water for smaller household areas..

. 4 Write a short note on the following : (Any Three)

i) Photosynthetic bacteria
ii) Shelford's law of tolerance.
iii) Soil microrganism functions
iv) Air Sanitation
v) Tertiary treatment
vi) Slow sand filters

—— The End ——