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BC-219 Seat No._____

B. Sc. (Sem. VI) Examination

March/April - 2014

CC - I - 13 : Biotechnology : Paper - XIII

(Environmental Biotechnology)

Time : 3 Hours] [Total Marks : 70

1 Answers the following : 10

(i) Azotobacter and Bacillus polymyxa are

(a) Decomposers

(b) Nonsymbiotic nitrogen fixers

(c) Symbiotic nitrogen fixers

(d) pathogenic bacteria

(ii) High value of B O D (Biochemical Oxygen Demand) shows

(a) water is normal

(b) water is highly polluted

(c) water is less polluted

(d) none of these

(iii) Biogas is produced by

(a) aeobic breakdown of biomass

(b) anaerobic break down of biomass

(c) with the help of methanogenic bacteria

(d) both (b) and (c)

(iv) Biogas is

(a) Methane rich fuel

(b) ecofriendly and pollution free source

(c) Propane rich fuel

(d) Both (a) and (c)

(v) Which is true for DDT ? It is

(a) not a pollutant

(b) an antibiotic

(c) an antiseptic agent

(d) a non degradable pollutant

(vi) Which is an indicator organism used for drinking water quality?

(a) Rhizobium sp.

(b) E.coli

(c) Enterobacter

(d) Bacillus subtilis

(vii) Organisms associated with sorghum and cotton, which provide nutrition to them are

(a) Azospirillium, Azotobacter

(b) Azotobacter, Azospirillum

(c) Anabaena, Rhizobium

(d) Rhizobium, Azotobacter

(viii) 'Fast growing rhizobia' called as...?

(a) Bradyrhizobium

(b) Rhizobium

(c) (a) and (b) both

(d) None of above

(ix) The Blue-green algae are small organisms and can be seen under ?

(a) nack eye

(b) microscope

(c) (a) and (b) both

(d) none of above

(x) Which of the following is considered to be the best chemical method of fixing atmospheric nitrogen?

(a) Fisher method

(b) Decan method

(c) Haber-Bosch method

(d) Paranas-Meyerhoff method

2 Answer the following : (any five) **10**

(i) Write the various techniques name for microbiological analysis of drinking water.

(ii) Draw the chart of municipal waste water treatment technique.

(iii) Define pollution write the name of pollutants

(iv) Define contamination and give the name of contaminant in water

(v) Draw the trickling filter device

(vi) Write the name of microorganisms used in Bioleaching process

(vii) What is Recalcitrant compound?

3 Answer the following : (any five) **30**

(i) Explain the source of pollution

(ii) What is biomagnifications process? Explain with example

(iii) Explain the physical and chemical properties of waste water.

(iv) Explain the solid waste treatment – Composting

(v) Explain the aromatic compound degradation by microbes

(vi) Write a microbiology and biochemistry of Bioleaching

(vii) Explain the process of PHA production

4 Answer the following : (any two) **20**

(i) Explain Biodegradation process in environment

(ii) Write the Biodegradation of Alkenes and Cyclohexan.

(iii) Summarize the tertiary treatment of waste water treatment techniques

(iv) Write a note on Biofertilizer
