

**B.N.BANDODKAR COLLEGE OF SCIENCE, THANE**  
**SECOND TERM EXAMINATION, MARCH 2010 - 2011**

**F.Y. B.Sc.**

**MARKS: 60**

**MICROBIOLOGY PAPER II**

**TIME: 2 hrs**

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- N.B.** 1. All the questions are compulsory.  
2. Illustrate your answers with suitable examples.  
3. All Questions carry equal marks.

**Q1. A. WRITE SHORT NOTES ON (any 3) 12**

1. Gnotobiotic life
2. Municipal waste water treatment processes
3. Carbon cycle
4. Anaerobic processes for waste water treatment
5. Biogeochemical cycling and Schematically represent it with the help phosphorus cycle

**Q1. B. GIVE SIGNIFICANCE OF (any 3) 3**

1. EMB agar
2. Impingement method
3. Rapid sand filters
4. SSU rRNA
5. Activated sludge process

**Q2 A. ANSWER THE FOLLOWING (any 3) 12**

1. Explain the following air enumeration techniques :
  - a) Impingement in liquid
  - b) Filtration
  - c) Centrifugation
2. Schematically represent sulfur cycle
3. Define extremophiles and discuss it with the help of adaptation to extremes alkalinity or acidity.
4. Write a note on metal toxicity & micro organisms.

**Q2. B. GIVE TWO EXAMPLES OF (ANY3) 3**

1. Iron oxidizers
2. Aerobic sulfur reducers
3. Noble metals
4. Acidophiles

**Q3 A. ANSWER THE FOLLOWING (any 3)****9**

1. Diagrammatically explain the cross section of lake.
2. State the factors affecting microbial population in water.
3. Diagrammatically explain trickling filters.
4. Write a note on activated sludge process.
5. Explain in detail temperature stratification.

**Q3. B. EXPLAIN THE TERMS (any 3)****3**

1. Sedimentation
2. Thermocline
3. Lakes
4. Screening
5. B.O.D

**Q3. C. MATCH THE FOLLOWING****3**

A	B	C
Thermophilic	<i>Clostridium perfringens</i>	Stenohaline
Estuaries	<i>Thermus aquaticus</i>	Remote water pollution
Water pollution	Halophilic	75°C

**Q4 A. ANSWER THE FOLLOWING (any 3)****9**

1. Describe the normal flora of skin.
2. Distinguish between germ free animals & normal animals.
3. Describe the normal flora of gastrointestinal tract.
4. Write a note on endomycorrhizae & arbuscular mycorrhizae.
5. Distinguish between commensalisms & mutualism.

**Q4. B. DEFINE THE TERMS (any 3)****3**

1. Normal flora
2. Mycorrhizae
3. Nitrogen fixation
4. Parasitism

**Q4.C. GIVE TWO EXAMPLES OF (any 3)****3**

1. Normal flora of genitourinary tract
2. Organisms found in rhizosphere
3. Symbiotic nitrogen fixers
4. Normal flora of teeth

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**Q1. WRITE SHORT NOTES ON (any 3) 12**

1. Origin of life.
2. Routine bacteriological analysis of potable water.
3. Carbon cycle
4. Factors responsible for inhibition organisms on skin
5. Biogeochemical cycling and explain it with the help of sulfur cycle

**Q1. B. GIVE SIGNIFICANCE OF (any 3) 3**

1. Endo agar
2. Impaction method
3. Slow sand filters
4. VBNC
5. Membrane filters

**Q2. A. ANSWER THE FOLLOWING (any 3) 12**

1. Explain the following air enumeration techniques :
  - a) Impaction on solid surfaces
  - b) Sedimentation
  - c) Electrostatic precipitation
2. Schematically represent Nitrogen cycle.
3. What are biofilms and why are they important ?
4. Explain the important functions of microorganisms as they interact in ecosystem.

**Q2. B. GIVE TWO EXAMPLES OF (any 3) 3**

1. Iron reducers
2. Aerobic sulfur oxidizers
3. Metals toxic to organisms
4. Halophilic organisms.

**Q3 A. ANSWER THE FOLLOWING (any 3) 9**

1. Diagrammatically explain zones in marine environment.
2. Diagrammatically explain Imhoff tank.
3. Write a note on activated sludge process.
4. Diagrammatically explain evapotranspiration method.
5. State the factors affecting effect of chlorination in water.

**Q3 B. EXPLAIN THE TERMS (any 3) 3**

1. Filtration
2. Screening
3. Communitors
4. Solid processing
5. C.O.D

**Q3 C. MATCH THE FOLLOWING 3**

A	B	C
Rapid sand filters	Black smokers	Secondary treatment
Trickling filter	Primary treatment	270°C - 280°C
Geothermal vents	Zooglea	200million gallons/day

**Q4 A. ANSWER THE FOLLOWING (any 3) 9**

1. Write a note on mycorrhizae.
2. Describe normal flora of genitourinary tract.
3. Write a note on human & microbiota relationship.
4. Describe the normal flora of teeth.
5. Define rhizosphere & explain the importance of organisms in rhizosphere.

**Q4 B. DEFINE THE TERMS (any 3) 3**

1. Gnotobiotic life
2. Actinorhizae
3. Nitrogen fixation
4. Amensalism

**Q4 C. Give two examples of (any 3) 3**

1. Normal flora of skin
2. Non - symbiotic nitrogen fixers
3. Normal flora of intestine
4. Mutualistic association