5863   *Your Roll No*

B.Sc. (Hons.) / II   **J**

MICROBIOLOGY – Paper IX

(MICROBIAL ECOLOGY)

(Admissions of 2004 & onwards)

Time   3 Hours   *Maximum Marks   60*

· (Write your Roll No on the top immediately
on receipt of this question paper)

*Attempt **Five** questions in all, selecting*
*at least **two** questions from each Section*
*Attempt Section **A** and **B** on separate answer-books*
· All questions carry equal marks

SECTION – A

1 (a) Why is Winogradsky known as the "Father of
       Soil Microbiology" ?   (3)

   (b) How would you distinguish between a community
       and a population ?   (2)

   (c) Compare autecology and synecology   (3)

   (d) What do you understand by pre-emptive
       colonisation ?   (2)

   (e) What is edge effect ?   (2)

2   Define the following   **any 6**

(i)   Soil profile

(ii)   Biomagnification

(iii) Weathering

(iv)   Mineralisation

(v)   Immobilization

(vi)   Soil texture

(vii) Niche

(viii) Biopesticide   (2×6=12)

3   (a)   What is meant by controlled parasitism ? Explain with the help of an example   (3)

     (b)   Write a note on atmosphere as a habitat for microbes   (3)

     (c)   Microbial succession is common in soil Comment   (3)

     (d)   Explain syntrophism   (3)

4   (a)   What do you know about diazotrophs ?   (2)

     (b)   Explain allelopathic effect   (2)

     (c)   Write a brief note on hydro-thermal vent as habitats for micro-organisms   (2)

(d) Comment on the microbial degradation of chitin   (3)

(e) Give **an** example of the following

   (i)   Bacterial biofertilizer

   (ii) Fungal biofertilizer

   (iii) Algal biofertilizer $(1 \times 3 = 3)$

SECTION – B

5 (a) What are the indicator microorganisms commonly used for checking the potability of drinking water ? Give reasons   (4)

(b) List any two biodegradable and recalcitrant xenobiotic molecules (each) Give pathways to show their degradation or recalcitrant nature $(4 \times 2 = 8)$

6 Explain with diagrams the different types of aerobic sewage treatment plants Mention the role of microorganisms in these plants   (12)

7 Write short notes on the following   (any 3)

   (a) Composting

   (b) BOD

   (c) Bioremediation

   (d) Biodeterioration of wood $(4 \times 3 = 12)$

(400)****