B.TECH/BT/6TH SEM/BIOT 3244/2019
BIOFERTILIZERS AND BIOPESTICIDES
(BIOT 3244)

Time Allotted : 3 hrs **Full Marks : 70**

Figures out of the right margin indicate full marks.

Candidates are required to answer Group A and any 5 (five) from Group B to E, taking at least one from each group.

Candidates are required to give answer in their own words as far as practicable.

Group – A
(Multiple Choice Type Questions)

1. Choose the correct alternative for the following: **10 × 1 = 10**

(i) Azospirrilum is used in:
(a) rice field (b) cane sugar (c) corn (d) none of these.

(ii) Bt-toxin kills the pest whose guts are:
(a) neutral (b) acidic (c) alkalaine (d) all of these.

(iii) ……..genes are responsible for nitrogen fixing ability of *Klebsiella*:
(a) Only nod genes (b) Lac and nod genes
(c) Only nif genes (d) Nif and nod genes.

(iv) The regulatory protein of nif operon is:
(a) Nif A (b) Nif L (c) Nif D (d) none of these.

(v) Methanogens fix nitrogen:
(a) Not at all (b) Under anaerobic conditions
(c) Allways (d) Sometimes.

(vi) Thick cell wall of heterocyst contain
(a) Glycoprotein (b) Lipoprotein
(b) Polypeptide (d) none of these.

(vii) Green muscardine disease of pests is caused by:
(a) *M. anisopliae* (b) *Beauveria sp*
(c) *Trichoderma sp* (d) none of these.

(viii) Microaerophillic prokaryote fixing nitrogen is:
(a) *Escherichia coli* (b) *Klebsiella*
(c) *Streptococcus* (d) *Bacillus.*

(ix) Nodulins are:
(a) bacterial genes (b) plant genes
(c) both bacterial and plant genes (d) none of these.

(x) B. *thuringiensis Var kurastaki* is used to control the attack of:
(a) mosquito (b) moth and butterfly
(c) beetle (d) none of these.

Group – B

2 (a) Define associative diazotroph . Give example.

(b) What is azobactin? Write its mode of action.

(c) How is Tricoderma sp isolated from soil?

4 + 4 + 4 = 12

3. (a) How are Rhizobium species isolated from the soil?

(b) Explain how agricultural productivity gets affected by rhizosphere effect.

7 + 5 = 12

Group – C

4. (a) What are heterocysts? Briefly discuss its function.

(b) Why is Azotobacter termed as associative symbiont?

(2 + 5) + 5 = 12

5. (a) Name one fungi acting as biofertilizer and discuss its mode of action.

(b) Distinguish between organic fertilizer and biofertilizer.

6 + 6 = 12

Group – D

6. (a) What is Shepherd's cook? Describe how it is formed.

(b) Describe the transcriptional regulation of nod operon.

(3+3) + 6 = 12

7. (a) How are the nif genes arranged in symbiotic nitrogen fixers?

(b) Mention their function.

(3 +3) + 6= 12

Group – E

8. (a) What is the importance of IPM programme?

(b) Mention different steps of achieving effective management of pests.

6 + 6 = 12

9. (a) What are cry and cyt genes?

(b) Write the mode of action of cry toxin.

6 + 6 = 12