

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 9590

Roll No.

--	--	--	--	--	--	--	--	--	--

**B. Tech.**

**(Semester-III) Theory Examination, 2011-12**

**MICROBIOLOGY & CELL BIOLOGY**

*Time : 3 Hours]*

*[Total Marks : 100*

*Note : Attempt questions as instructed in respective sections.*

**Section-A**

1. Attempt *all* parts. 2×10=20
- (a) What is the difference between bactericidal and bacteriostatic agents ?
  - (b) Name the methods used to obtain single isolated colony of bacteria from soil sample.
  - (c) What is bacterial growth curve ? Write its phases.
  - (d) Based on morphology how many types of bacteria are known ?
  - (e) What are bio-fertilizers ? What types of organisms are involved in it ?

6. What are the major water born microbial diseases ?  
Mention their causative agents and mode of spread.

*Or*

Discuss the etiology of rabies in detail giving suitable diagrams.

7. Write short notes on any two of the following :
- (a) Periplasm and its significance
  - (b) Cell cycle check points
  - (c) Intrinsic pathway of apoptosis.

- (f) What is bioremediation ? Categorize the methods.
- (g) Define photo-phosphorylation.
- (h) What is the difference between species and strain ?
- (i) What is angiogenesis ? Where does it cause problem ?
- (j) What are Koch's postulates ?

### Section-B

2. Attempt any *three* parts. 10×3=30
- (a) What do you understand by pure culture ? Describe any method for pure culture and mention its advantages and disadvantages.
  - (b) What are the various methods for preservation of various bacterial cultures ? Illustrate any two mentioning their relative importance.
  - (c) Which characteristics are used to identify microbes ? Describe the morphological basis of microbial identification in detail.
  - (d) 'Microbes are good ecological indicator.' Illustrate the statement with the help of suitable examples.
  - (e) Discuss the role of microbes in bioremediation with the help of suitable examples.

### Section-C

Attempt *all* questions as instructed in question. All questions carry equal marks : 10×5=50

3. Write short notes on any two of the following :
- (a) Pattern of death in a microbial population in response to antimicrobial agents.
  - (b) Mechanisms of microbial cell damage.
  - (c) Biological parameters affecting bacterial growth kinetics.
4. Attempt any two of the following :
- (a) What do you understand by non symbiotic nitrogen fixing microbes ? Give examples.
  - (b) What is dark phase of photosynthesis ? What is its contribution to carbon assimilation ?
  - (c) Enumerate the advantages of bio-fertilizers over chemical fertilizers.
5. Describe any two of the following :
- (a) Variation in bacterial photosynthesis
  - (b) Bacterial rhodopsin
  - (c) Photosynthetic ETS