

22 OCT 2019

**M.Sc. (Microbiology) Semester III Examination October -2019**  
**Paper XI Microbial Taxonomy**

**Paper Code : 3692**

**Time : 2:30 hrs**

**Total Marks :70**

Instruction : All questions carry equal marks

**Q 1 A:** What is taxonomy? Give a detailed account of Bergey's Manual of Systematic Bacteriology. 14

**OR**

Write on : (a) Whittaker's 5 kingdom classification 07  
(b) Three Domain concept of Carl Woese 07

**B:** Answer any four : 04

- (1) What are molecular markers?
- (2) What is polyphasic taxonomy?
- (3) What is endosymbiotic theory?
- (4) What are morphovars?
- (5) What are serovars?
- (6) State contribution of Haeckel in taxonomy.

**Q 2 A:** What is the significance of molecular methods in studying microbial diversity. Describe DGGE method in detail. 14

**OR**

**A:** Write on : (a) Quorum sensing in Gram positive Bacteria 07  
(b) Anoxygenic phototrophs 07

**B :** Answer any four : 04

- (1) \_\_\_\_\_ is an important factor in the evolution of many organisms.  
(a) Quorum Sensing (b) Lateral gene transfer (c) RNA processing (d) Replication
- (2) Autoinducer type I can allow the bacteria to communicate  
(a) Intra species (b) inter species (c) With all bacteria (d) With eukaryotes
- (3) What are signature sequences?
- (4) Define : Association coefficient
- (5) Enlist the proteins chiefly used in phylogenetic and taxonomic studies.
- (6) Give the full form of MALDI-ToF.

**Q 3 A:** Give an outline classification of fungi upto phyla (no description needed). State the characteristics of Kingdom *Fungi*. 14

**OR**

**A:** Explain : (a) Stages on ascus formation 07  
(b) Life cycle of *Mucor* sp. 07  
(PTO)

**B: Answer any three :**

03

1. Who discovered parasexual cycle?
2. In which of the following parasexual cycle was first observed?  
(a) *Aspergillus niger* (b) *Aspergillus nidulans* (c) *Penicillium notatum* (d) *Trichoderma*
3. Distinguish between flocculation and agglutination in *Saccharomyces*.
4. Besides basidiospores, which of the following is a characteristic of *Basidiomycota*  
(a) Clamp connections (b) Dolipore septa (c) Double-layered cell wall (d) All of these
5. Which of the following has *Penicillium* as anamorph ?  
(a) *Talaromyces* (b) *Saccharomyces* (c) *Emericella* (d) *Paecilomyces*

**Q 4 A: Explain general characteristics, detailed structure and replication of Retroviruses.** 14

**OR**

**A: Write on :** (a) The viroids, prions and satellite viruses 07

(b) Animal viruses 07

**B: Answer any three :** 03

- (1) During the infection the phage sheath \_\_\_\_\_  
(a) Contracts (b) Expands (c) Disintegrate (d) Integrates with cell membrane
- (2) What is a prophage?
- (3) What is meant by early and late proteins with reference to viruses?
- (4) The process of Lysogeny is carried out only by phage containing \_\_\_\_\_ as their genetic material  
(a) ssDNA (b) dsDNA (c) ssRNA (d) dsRNA
- (5) Which of the following does not occur when a virulent phage infects cells,  
(a) Infected cells produce large number of virions  
(b) The host cell burst or lyse  
(c) New phages are released to infect the other cells  
(d) The phage DNA integrates with host DNA