



**GAY-412**

Seat No. \_\_\_\_\_

**B. Sc. (Sem. IV) Examination**

**March / April - 2017**

**MI-204 : Microbiology**

**(Microbial Biodiversity)**

Time : 3 Hours ]

[ Total Marks : 70

**Instruction :** All questions are compulsory.

**1** Answer the following Multiple Choice Questions. **10**

(1) Which method is used to study the eukaryotic biodiversity using rRNA sequence comparison ?

- (A) 16s rRNA                      (B) 18s rRNA  
(C) 23s rRNA                      (D) 80s rRNA

(2) The group of individual which breed freely amongst them is constituted as

- (A) Family                      (B) Genus  
(C) Species                      (D) Sub species

(3) Earth will be filled up by organic material, if the group of organism are missing

- (A) Parasites  
(B) Chemolithotrophs  
(C) Methanogens  
(D) Lithoautotrophs

(4) Protozoa cannot reproduce by

- (A) Binary fission  
(B) Budding  
(C) Fragmentation  
(D) Sexual Reproduction

- (5) Axenic cultures :
- (A) A homogeneous population of microbial cells that require Anaerobic Environment.
  - (B) A homogeneous population of microbial cells deriving from a single species.
  - (C) A population of group of multiple type organisms in habitat
  - (D) A population of Aerobic type organisms
- (6) Which of the following techniques can be used to estimate the number of microbes in a natural sample ?
- (A) Enrichment culture
  - (B) Extinction culture technique
  - (C) Most probable number (PAN)
  - (D) Specialized culture method
- (7) In Lichens, Sexual reproduction is carried out by
- (A) Algal partner
  - (B) Fungal partner
  - (C) Both Fungal and Algal partner
  - (D) Depends on habitat
- (8) Fungi usually store the reserve food material in the form of
- (A) Starth                      (B) Lipid
  - (C) Glsycogen                (D) Protein
- (9) What is not true for Thermophiles ?
- (A) An organism thrives at relatively high temperatures, between 41 and 122°C
  - (B) They generally found in Hot springs and deep sea hydrothermal vents.
  - (C) It contains very low level of GC ration for better stability of their DNA
  - (D) This group of organisms also help to run PCR like techniques.

(10) Which of the following is not true for endosymbiosis ?

- (A) A condition of living within the body or cells of another organism.
- (B) A process explains development of eukaryotic organism.
- (C) A type association in which one organism benefited and other will be harmed.
- (D) Discovery associated with Mitochondria and chloroplast.

2 Give the answer of the following short questions : 10  
(any five)

- (1) What is Biodiversity ?
- (2) Write detailed account on Archaeal diversity.
- (3) Explain the problem associated with Biodiversity Study using Electron Microscopy.
- (4) How you can use differential and enrichment culture techniques as Method to study biodiversity.
- (5) Explain the diversity on Extreme environment
- (6) Write a short description on Chlamydiae.
- (7) What is the meaning of prions ?
- (8) Define the term : Mycology.

3 Give the answer in brief of the following questions : (any four) 16

- (1) Explain Species and Speciation.
- (2) Write in brief : Microbial biodiversity as index of environmental change.
- (3) Write a contribution of Charles Darwin and Lamarck in Evolution.

(4) Explain in brief : Protein Biomarkers and Biodiversity assessment.

(5) Explain GC content in detail.

(6) Write a note on DNA hybridization technology.

**4** Give the answer in brief of the following questions : **16**  
(any four)

(1) Draw the labeled diagram of Prokaryotic and Eukaryotic cell.

(2) Explain : Diversity amongst organism based on salt requirement.

(3) Write a difference between Heterotrophes and Autotrophic Microorganisms.

(4) Modes of Reproduction in Algae.

(5) Write an economic importance of Fungi.

(6) Explain benefits of Lichens in environment.

**5** Write short note on the following questions :  
(any three)

(1) Write a detailed note on general characteristics of algae.

(2) Explain various cultivation methods for virus.

(3) Explain PCR in detail.

(4) How life has been evolved on earth ? Give its experimental proof with Miller and Urey Experiment.

(5) Write a note on Value of Biodiversity.