

M.Sc. (Final)  
Term End Examination, 2016-17

# MICROBIOLOGY

### Paper - III

# Microbial Physiology and Development

*Time : Three Hours]      [Maximum Marks : 100*  
*[Minimum Pass Marks : 36*

**Note** : Answer **all** questions. All questions carry equal marks.

## Unit-I

1. Define Entropy. Explain the concept of entropy in living system and its physical significance.

***OR***

Write notes on the following:

- (a) Energy rich compounds
- (b) Energetic coupling

( 2 )

**Unit-II**

2. Describe the mechanism of electron transport in photosynthesis mentioning autotrophic generation of ATP.

**OR**

Write notes on the following :

- (a) CO<sub>2</sub> assimilation in C<sub>3</sub> plants  
(b) Chemolithotrophy

**Unit-III**

3. Describe the different steps of Kreb's cycle mentioning name of enzymes involve in catalytic reaction.

**OR**

Write notes on the following :

- (a) Fermentation of carbohydrates  
(b) Oxidative phosphorylation

**Unit-IV**

4. Describe the role of reductive amination and transformation in biosynthesis of major amino acids.

**OR**

( 3 )

Write notes on the following :

- (a) Nitrate Reduction
- (b) Polysaccharide Synthesis

**Unit-V**

5. Describe the mechanism of Sporulation and Morphogenesis in the process of microbial development.

**OR**

Write notes on the following :

- (a) Microbial dormancy
  - (b) Multicellular organisation in microbes
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