

(20518)

Roll No.

B. Sc.(Micro.)-II Year

3497

B. Sc. (Microbiology) Examination, May 2018

Microbial Metabolism

(B-204)

Time : Three Hours

[Maximum Marks : 50

Note : Attempt any *Five* questions. All questions carry equal marks.

1. What is bioreactor ? Describe its importance in fermentation technology. 10
2. Differentiate between : $2\frac{1}{2} \times 4 = 10$
 - (i) Fermentation and anaerobic respiration
 - (ii) Aerobic and anaerobic respiration
 - (iii) Nitrification and denitrification
 - (iv) Primary and secondary metabolites.
3. Give a detailed account of Electron transport mechanism in microbes. 10

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4. Explain, how Nitrogen fixation is carried out in leguminous plant by the microbes? 10
5. Describe biochemical steps of glycolysis. 10
6. What are the advantages of fermentation technology at industrial level? 10
7. Give a general account of secondary metabolites produce by the microbes. 10
8. Write short notes on any four of the following : $2\frac{1}{2} \times 4 = 10$
 - (i) Homolactic fermentation
 - (ii) Oxidative phosphorylation
 - (iii) Nitrogen assimilation
 - (iv) Nitrogenase enzyme
 - (v) Autotrophic and heterotrophic bacteria.
9. Give a detailed account of the role of microbes in Nitrogen cycle in nature. 10

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10. Answer the following parts: $1 \times 10 = 10$

- (i) What is the end product of glycolysis under anaerobic condition?
- (ii) What is the role of leghaemoglobin in N_2 -fixation?
- (iii) Write the name of enzyme responsible for conversion of pyruvate into acetyl Co A.
- (iv) Write the name of any denitrifying bacterium.
- (v) How many NADH are produce during TCA cycle?
- (vi) Write the name of any two secondary metabolites produce by microbes.
- (vii) What are Nod-factors?
- (viii) What is chemoosmotic theory?
- (ix) Write the name of two photoautotrophic microbes.
- (x) What are antibiotics?