V
(20516)

Roll No. 9966020

B. Sc. (Micro.)-II Year

3497

B. Sc. (Microbiology) Examination, May 2016

Microbial Metabolism

(B-204)

Time : Three Hours] *[Maximum Marks : 50*

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

1. Briefly describe various metabolic activities of microorganisms. 10

2. Describe different types of fermentation and their importance in human welfare. 5,5

3. Write an account of oxidative phosphorylation in microbes. 10

4. What do you understand by Anaerobic Respiration ? Describe the mechanism of anaerobic respiration in microorganisms. 3,7

5. Write short notes on any four of the following : 2½ each

(a) Acetogenesis

(b) Microbial production of ethanol

(c) Cyanobacteria

(d) Nif-genes

(e) Leghaemoglobin

(f) Lectins and Mycoparasitism.

6. Write an account of Nitrogen fixation in free-living microorganism. 10

7. Write notes on any two of the following : 5 each

(a) Nitrification and Denitrification

(b) Inorganic Nitrogen Assimilation

(c) Pentose Phosphate Pathway.

8. What are the main types of carbohydrates found in microbes ? Write notes on their importance in plant metabolism. 5,5

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(20517) Roll No. 15966A662

B.Sc. (Micro.)- II Year

3497

B.Sc. (Microbiology) Examination, May 2017

Microbial Metabolism

(B-204)

Time : Three Hours] *Maximum Marks : 50*

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

1. Define the term fermentation. What are its significances in industrial microbiology? 10

2. What is oxidative phosphorylation? Describe the current model of oxidative phosphorylation. 5,5

3. Discuss in brief the mechanism of nitrogen fixation in bacteria. 10

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4. Briefly discuss the glycolysis process in bacteria. 10

5. Define respiration. Describe the process of anaerobic respiration. 10

6. Write short notes on any four of the following : 2½ each

(a) Reserve polymers

(b) Chemolithotrophs

(c) Nitrifying bacteria

(d) Nitrification

(e) Nod factors

(f) Nitrogen assimilation

7. Write an account of Nitrogen fixation by autotrophic microorganism. 10

8. Write short notes of any two of the following : 5 each

(a) Azotobacter

(b) Oxygenic photosynthesis

(c) Photoautotrophs

Glycose

(20518)

Roll No. 169356917

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 : 2½×4=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

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: $2\frac{1}{2}\times4=10$

(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

10. Answer the following parts: $1\times10=10$

(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 bacterum.
(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?