G-2/236/21

Roll No. .....

M.Sc. II Semester Examination, 2021

MICROBIOLOGY

Paper II

(Bioenergetics and Metabolism)

Time : 3 Hours] [Max. Marks : 80

Note : *All questions are compulsory. Question Paper comprises of 3 sections. Section A is objective type/multiple choice questions with no internal choice. Section B is short answer type with internal choice. Section C is long answer type with internal choice.*

SECTION A **1 × 8 = 8**

(Objective Type Questions)

Choose the correct answer :

1. Hydrolysis of phosphate groups in ATP is an :

(a) Exergonic process

(b) Endergonic process

(c) Endothermic process

(d) Thermal process

2. High energy compounds includes all of the following except :

(a) Esters

(b) Enol phosphates

P.T.O.

(c) Phosphate anhydrides

(d) Creatine phosphate

3. Which enzyme catalyzes the conversion of pyruvate to oxaloaloacetate ?

(a) Pyruvate carboxylase

(b) Pyruvate dehydroginase

(c) Pyruvate kinase

(d) Phosphofructokinase–1

4. ATP generate during glycolysis pathway :

(a) 8 (b) 10

(c) 2 (d) 12

5. The structure of Squalene have :

(a) 30 carbon (b) 28 carbon

(c) 27 carbon (d) 12 carbon

6. Where is cholesterol not synthesized :

(a) Plants (b) Animals

(c) Insects (d) All of the above

7. The end product of valine degradation :

(a) Succinyl CoA (b) Pyruvate

(c) Oxaloacetic acid (d) All of the above

8. The nucleotides are :

(a) Purine bases

(b) Nitrogen base + pentose sugar

(c) Nitrogen base + pentose sugar + phosphate

(d) None of above

SECTION B **6 × 4 = 24**

(Short Answer Type Questions)

Note : *Answer the following questions.*

Unit-I

1. Explain the high energy biological compounds.

Or

Explain the law of Thermodynamics.

Unit-II

2. Explain the HMP shunt pathway and its significance.

Or

Explain the pathway of glycogenolysis and its importance.

Unit-III

3. Write note on Shutte system for entry of electron.

Or

Explain the role and biosynthesis of plasmalogen and ceremide.

Unit-IV

4. Explain the salvage pathway of purine and pyrimidine biosynthesis.

Or

Explain the regulation of purine biosynthesis.

SECTION C **12 × 4 = 48**

(Long Answer Type Questions)

Note : *Answer the following questions.*

Unit-I

1. Explain ATP cycle.

Or

Explain an account of ATP hydrolysis.

Unit-II

2. Explain Gluconeogenesis and its importance.

Or

Explain any 6 inborn errors of carbohydrate metabolism.

Unit-III

3. Explain the biological role and biosynthesis of squalene.

Or

Explain the oxidation of phytanic acid and give energetic

Unit-IV

4. Explain the biological role and biosynthesis of Isolucine.

Or

Explain the denovo pathway of purine biosynthesis and formation of IMP and give its importance.

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