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BCG-003-1015010 Seat No. _____

B. Sc. (Sem. V) (CBCS) (W.E.F. 2010) Examination

August – 2021

MB - 502 : Microbiology

(Prokaryotic Metabolism)

(New Course)

Faculty Code : 003

Subject Code : 1015010

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

Instruction : Answer any five question out of ten.

- 1 (A) Answer the following : 4
- (1) What is ΔG ?
 - (2) What is k_m ?
 - (3) Write the first law of thermodynamics.
 - (4) Justify ATP is the currency of energy.
- (B) Answer in brief : 2
- Explain allosteric enzyme.
- (C) Answer in detail : 3
- Write on noncompetitive inhibition.
- (D) Answer the following : 5
- Derive Michaelis – Menten equation.
- 2 (A) Answer the following : 4
- (1) Define Entropy.
 - (2) Write full form of ATP, ADP.
 - (3) Write full form of NAD and NADP.
 - (4) Write just Michaelis-Menten equation.
- (B) Answer in detail : 2
- What is feedback inhibition ?
- (C) Answer in detail : 3
- Explain in detail Lineviweaver burke plot.

- (D) Answer in detail : 5
 Explain role of reducing power in Metabolism.
- 3 (A) Answer in short : 4
 (1) Write down the overall reaction of stickland reaction.
 (2) Enlist the name of regulatory enzyme in glycolysis.
 (3) How many ATP will be generate at the end of the glycolysis process ?
 (4) Give full form of HMP pathway.
- (B) Answer in short : 2
 Importance and functions of pentose phosphate pathway.
- (C) Answer in detail : 3
 Explain Glyoixylate cycle.
- (D) Write a note on : 5
 TCA cycle
- 4 (A) Answer in short : 4
 (1) Give full form of ED pathway.
 (2) TCA cycle also call it as _____.
 (3) At the end of the Glycolysis Glucose will converted to _____
 (4) Why PPP is called shunt pathway ?
- (B) Answer in brief : 2
 Define oxidative deamination.
- (C) Answer in detail : 3
 Write a note on PPP.
- (D) Answer in detail : 5
 Explain Glycolysis.
- 5 (A) Answer in short : 4
 (1) Give full form of PMF.
 (2) Give example at ATPase system.
 (3) How many types of reaction center present in cynobacteria ?
 (4) Give full form of NAM.
- (B) Answer in detail : 2
 What is oxidative phosphorylation ?

- (C) Answer in detail : **3**
 Note on any two carriers of ETC.
- (D) Answer in detail : **5**
 Bacterial photosynthesis.
- 6** (A) Answer in short : **4**
 (1) Give example of photosynthetic pigment present in photosynthetic bacteria.
 (2) Write any 2 example of anoxygenic phototrophic bacteria.
 (3) Give full form of ETC.
 (4) Enlist carrier presents in ETC.
- (B) Answer in detail : **2**
 List the application of biochemical mutants.
- (C) Answer in detail : **3**
 Discuss in detail Biosynthetic pathway of peptidoglycan.
- (D) Write a note on : **5**
 Whole process of ETC.
- 7** (A) Answer in short : **4**
 (1) Give example of nitrifying bacteria.
 (2) Define – chemoautotrophs.
 (3) Propionate fermentation use _____ and _____ pathway for synthesis.
 (4) Give example of Homofermentative lactic Acid bacteria.
- (B) Answer in detail : **2**
 Explain decarboxylation.
- (C) Answer in detail : **3**
 Explain Sulfur oxidizers.
- (D) Write a note on : **5**
 Methanogens
- 8** (A) Answer in short : **4**
 (1) _____ convert organic material to methane.
 (2) Which organism can grow on high salt concentration ?
 (3) Write two example of Iron bacteria.
 (4) _____ organism contains Hydrogenase enzyme.

- (B) Answer in brief : **2**
Habitants of sulfur oxidizing bacteria.
- (C) Answer in detail : **3**
Explain reaction in nitrifying bacteria.
- (D) Write a short note on : **5**
Homo-fermentative lactic acid fermentation.
- 9** (A) Answer in short : **4**
(1) Define : Quorum sensing.
(2) What is active transport ?
(3) What is passive transport ?
(4) What are peripheral proteins ?
- (B) Answer in brief : **2**
What is simple diffusion ?
- (C) Answer in detail : **3**
Write difference between active and passive transport.
- (D) Write a short note on : **5**
Integral peripheral membrane proteins.
- 10** (A) Answer in short : **4**
(1) Give a type of passive transport.
(2) What are uniporters ?
(3) What is symport ?
(4) Which molecules are permeable for phospholipid bilayer ?
- (B) Answer in brief : **2**
Explain membrane fluidity
- (C) Answer in detail : **3**
Explain mechano-sensitive channels.
- (D) Write a note on : **5**
Signal transduction.
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