HCN-003-001527 Seat No. _____

B. Sc. (Sem. V) (CBCS) Examination

October - 2017

MB. P - 503 : Microbiology

(Prokaryotic Metabolism)

Faculty Code : 003
Subject Code : 001527

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

1 Objective type questions : **20**

(1) Define Quorum sensing.

(2) Give the name of integral membrane protein situated on erythrocyte surface.

(3) Give example of oxygen containing carotenoid.

(4) Give an example of sulphur oxidizing bacteria.

(5) Define Holoenzyme.

(6) Chemiosmotic driven transport generate the energy through across cell membrane by _____ transport.

(7) Respiratory Quotient.

(8) Comment on RuBisCO.

(9) _____ inhibition occurs when the inhibitory chemical which has no similarity to the substrate, binds to the enzyme other than at active site.

(10) Lower Km value of an enzyme indicates_____.

(11) Give the name of the enzyme involved in conversion of glucose 6-phosphate to fructose 6-phosphate.

(12) Give one property of Methanogen bacteria and example.

(13) Pyruvate is converted into lactate under _____ conditions.

(14) How many number of ATP are generated by complete oxidation of palmitic acid ?

(15) Give the name of end product of non-cyclic photophosphorylation.

(16) Oxidation is the _____ of electrons and reduction is the _____ of electrons.

(17) When a ____ reaches its target cell, there is specific means of receiving it and acting on the message. This task is the responsibility of specialized proteins called _____.

(18) Give an example of secondary messenger in signal transduction.

(19) Give difference between uniport and antiport.

(20) Comment on Rusticyanin.

2 (a) Answer in brief : (any three) **6**

(1) 1st and 2nd laws of Thermodynamics help us to understand _____.

(2) Classification of Microorganisms based on sources of energy.

(3) Enlist different modes of ATP generation.

(4) Enlist different modes of oxidative phosphorylation.

(5) Enlist two groups of chemoautotrophs with examples.

(6) Enlist bacterial membrane lipids with examples.

(b) Answer in detail : (any three) **9**

(1) Justify the statement "ATP is Universal currency of energy in Biological system".

(2) Write note on Regulation of Embden Mayerhoff Pathway.

(3) Write note on structure of ATP Synthase.

(4) Write note on biosynthesis of peptidoglycan.

(5) Write note on Hydrogen Bacteria.

(6) Write a note on transport system in which transport of molecules across the membrane does not require an input of energy.

(c) Write notes on : (any two) **10**

(1) Laws of thermodynamics.

(2) Kreb's cycle and its regulation.

(3) Anaerobic respiration of bacteria.

(4) Metabolism of Methanogens.

(5) Signal transduction.

3 (a) Answer in brief : (any three) **6**

(1) Write note on general properties of regulatory enzymes.

(2) Write note on Stickland Reaction.

(3) Give name of enzymes involved in denitrification with its function.

(4) Write note on flavoproteins.

(5) Write note on siderophore

(6) Give name of substrate utilised and terminal electron acceptor for chemoautrophs such as Iron bacteria and Hydrogen bacteria.

(b) Answer in detail : (any three) **9**

(1) Write a note on chemolithotrophy.

(2) Propionate fermentation

(3) Write note on any two carrier molecules of ETC.

(4) Write note on generation of ATP in Alkalophiles.

(5) Differentiate between oxidative deamination and non oxidative deamination.

(6) Write a note on Active site.

(c) Write notes on : (any two) **10**

(1) Derive Michaelis - Menten equation

(2) Beta oxidation of palmitic acid.

(3) Methods for studying Biosynthesis.

(4) Butyrate fermentation and Succinate fermentation

(5) Iron transport system and Phosphotransferase system.
