B. N. BANDODKAR COLLEGE OF SCIENCE, THANE
~~IV SEMESTER END~~ EXAMINATION- ~~March~~ - 2015
ADDITIONAL/ATKT **S.Y.B.Sc.** JUNE
USBT 403

Duration: 2 hrs 30 min **Total Marks: 75**

N. B. 1) All questions are compulsory.

2) Figures to right indicate full marks.

3) Draw neat and labeled diagrams wherever necessary

Q.1 A **Answer the following. (Any four)** **8**

1) Define: a) Open system b) Universe .
2) Explain the term : Phosphorylation potential.
3) Define : a) Entropy b) Enthalpy.
4) What is standard free energy change?
5) Give the dietary sources and deficiency symptoms of Vitamin C.
6) What is lipoic acid? State its biochemical function.
7) Give any two functions of pyridoxine.
8) State the significance of cobalamin.

Q. 1 B **Answer the following. (Any two)** **12**

1) With suitable examples explain second law of thermodynamics.
2) Explain how hydrolysis of 1,3-bisphosphoglycerate and PEP release high amount of energy.
3) Write a note on riboflavin.
4) Discuss in detail functions of vitamin A.

Q.2 A **Answer the following. (Any four)** **8**

1) Give the role of ubiquinone in ETC.
2) What is proton gradient? State its significance.
3) Explain the term : Phycobilisomes.
4) Define redox potential.
5) State the significance of thylakoids.
6) Explain the term : Exciton Transfer.
7) Give significance of light reaction of photosynthesis.
8) What is oxygenic photosynthesis?

P.T.O.

Q.2 B	**Answer the following. (Any two)**	**12**
1)	Discuss the role of NADH in ETC.	
2)	Diagrammatically explain Complex I of ETC.	
3)	Write a note on the light harvesting complex and reaction centre pigments of photosynthesis.	
4)	With the help of neat, labeled diagram, describe cyclic photophosphorylation in purple bacteria.	
Q.3 A	**Answer the following. (Any four)**	**8**
1)	Give two applications of paper electrophoresis.	
2)	What is negative staining with respect to TEM?	
3)	Give the significance of TEMED.	
4)	Give the significance of APS	
5)	What is the advantage of freeze etching specimen preparation?	
6)	Give two applications of PAGE.	
7)	What is the significance of barrier filter in fluorescent microscope?	
8)	Why only extreme thin slices can be viewed in average TEM?	
Q.3 B	**Answer the following. (Any two)**	**12**
1)	What is fluorescence microscopy? Give its applications.	
2)	Diagrammatically explain horizontal electrophoretic apparatus.	
3)	What is electrophoresis? Explain its principle in context with the mobility of ions.	
4)	Explain with ray diagram, the working of SEM.	
Q. 4	**Answer the following**	**15**
1)	Justify "ATP is the energy currency of the cell."	
	OR	
1)	What are vitamins? Discuss their classification.	
2)	Schematically explain reductive TCA.	
	OR	
2)	Compare and contrast oxidative and reductive phosphorylation.	
3)	Write a note on the principle and working of confocal microscopy.	
	OR	
3)	Write a note on the moving boundary electrophoresis.	

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