

B. N. BANDODKAR COLLEGE OF SCIENCE, THANE
~~SYNOPSIS/END~~ EXAMINATION- ~~MARCH~~- 2015
ADDITIONAL/ATKT. S.Y.B.Sc. JUNE
USMB- 402

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 Answer the following (Any 2 of 4). 20M

- 1 a Explain the steps of splicing of mRNA.
b Differentiate between human and bacterial transcription.
- 2 a Give a detailed account of 3' end modification of pre-mRNA.
b Explain how RNA synthesis is terminated in prokaryotes.
- 3 Describe in detail how a protein is modified after it is produced by translation.
- 4 a Explain the mechanism by which amino acids get activated for translation process.
b Describe the elongation of translation in eukaryotes.

Q.2 Answer the following (Any 2 of 4). 20M

- 1 a Justify: Housekeeping genes are constitutively expressed.
b Describe the various methods to study metabolism.
- 2 a Justify: A biochemical pathway has precursors, intermediates and end products.
b Compare and contrast: Linear Vs branched pathway.
- 3 a Schematically explain Glyoxylate bypass.
b Justify: ATP and NADH link catabolism with anabolism.
- 4 a Explain in detail the preparatory phase of glycolysis.
b Write a short note on amphibolic pathway.

P.T.O.

Q.3 Answer the following (Any 2 of 4).

- 1 a Diagrammatically explain induced fit and lock-key mechanism of enzyme substrate reaction.
- b Discuss the effect of enzyme concentration and pH on enzyme activity.
- 2 a What are enzyme inhibitors? Discuss briefly uncompetitive inhibitors.
- b Write a short note on classification of enzymes.
- 3 a Justify : Modulators regulate the activity of allosteric enzymes.
- b Discuss the ordered and random mechanism of enzyme substrate reaction.
- 4 a Derive a suitable equation to determine the relationship between K_m and V_{max} .
- b Write a short note on different methods used for enzyme extraction.

Q.4 Answer the following.

- a
- i What is the significance of 5' cap of mRNA? **OR** 2M
State the role of RNA replicase.
- ii Give significance of TCA cycle. **OR** 2M
Name the enzymes involved in regulation of TCA cycle.
- iii What is catalyst? **OR** 1M
Define: Active site of enzyme.
- b
- i How does acridine inhibit RNA polymerase? **OR** 1M
Name the subunits of prokaryotic ribosomes.
- ii Give examples of enzymes taking part in anaplerotic reactions. **OR** 2M
What are the different types of metabolic reactions?
- iii Define: Cofactor. **OR** 2M
Explain turn over number of enzymes.
- c
- i What is the function of release factors in gene expression? **OR** 2M
Name two inhibitors of protein synthesis.
- ii Where does TCA cycle occur inside a eukaryotic cell? **OR** 1M
Define metabolite.
- iii What are prosthetic groups? **OR** 2M
Give significance of LB plot.
