VPM's B. N. BANDODKAR COLLEGE OF SCIENCE, THANE
IV SEMESTER END EXAMINATION- MARCH- 2017
S.Y.B.Sc.
USMB- 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 Answer the following (Any 2 of 4) **20M**

1a Differentiate between A, B and Z form of DNA.

b Justify: Certain DNA sequences adopt unusual structures.

2 Give an account of enzymatic and nonenzymatic transformations in nucleotides and nucleic acids.

3 What are the different types of RNA? Give a detailed account on different types of complex three dimensional structures formed in many RNAs.

4 What are histone proteins? Diagrammatically explain the changes in the structure of chromosomes during Eukaryotic cell cycle.

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

1 Write a note on ribosomes. Also elaborate on features of mRNA required for translation process.

2 Give a detailed account on elongation phase of translation.

3 Give a detailed account on characteristics of genetic code.

4 a. How are proteins sorted in cell?

b. Elaborate on transcription termination in prokaryotes.

Q.3 Answer the following (Any 2 of 4). **20M**

1a. Write a short note on irreversible inhibitors.

1b. Derive the Lineweaver-Burke equation. Also comment on its significance.

2 Discuss the MWC and KNF model for enzyme substrate reaction.

3 Justify: Every enzyme shows maximum activity at specific pH and temperature.

4a. Explain in detail the ping pong and random mechanism of multisubstrate reactions.

4b. How would you separate and characterize proteins using chromatographic techniques?

P.T.O.

Q.4 Answer the following. 15M

A

I	What is H DNA? **OR** Explain Depurination reaction.	2M
ii	Explain the term: Promoter. Give its significance. **OR** Give the significance of tRNA in prokaryotic translation.	2M
iii	Give two examples of ~~fat~~ soluble vitamins. **OR** Define isoelectric point.	1M

B

I	Define mutation. **OR** Define Heat denaturation	1M
ii	Name two initiation factors required for translation. **OR** Explain the term: polycistronic and monocistronic mRNA.	2M
iii	What is specific activity of enzyme? **OR** Explain the term: Isoenzymes with suitable examples	2M

C

I	Explain the term: DNA hybridization. **OR** Differentiate between palindrome and mirror repeat (one point).	2M
Ii	Give significance of RNA polymerase holoenzyme. **OR** Translation in prokaryotes takes place in the nucleus. State True or False.	1M
iii	Define Coenzyme. State its importance for an enzyme. **OR** What is PAGE?	2M

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