B.N. Bandodkar College of Science, Thane

IIIrd Semester End Examination Oct-2014

USBCH 302

Duration: 2hrs and 30 mins. **MaxMarks-75**

N.B 1) All Questions are compulsory.

2) Draw neat and labeled diagrams wherever necessary.

3) Figures to right indicate full marks.

Q.1) A)Answer the following.(Each question carries 4 marks) **20**

a) Write a note on Mendel's hybridization experiments?

OR

a)Explain seven traits of pea plant.

b) Explain law of dominance.

OR

b) Explain law of segregation.

c) Explain Co-dominance.

OR

c) Explain incomplete dominance.

d) Define epistasis and explain dominant epistasis.

OR

d) Explain Punnett square with suitable example.

e) In humans , brown eyes are dominant to blue eyes also brown hair is dominant to Golden hair. Imagine that a man who is heterozygous for both the traits marries a woman who is heterozygous for both traits.

i. What are the genotypes of parents?

ii. What would be the phenotypic ratio of their potential children?

OR

e) The allele for red feather color in pigeons, B, is dominant to the allele for brown feathers, b. A red pigeon that had a red parent and a brown parent is mated with a brown pigeon.

i. What are the genotypes of the two pigeons being mated?
ii. Identify the gametes produced by each of the pigeons being mated.
iii. What proportion of the F_1 progeny would be expected to have brown feathers?

Q.2) **B) Answer the following .(Each question carries 4 marks)** 20

a) Explain ori.

OR

a) Describe the basic structure of prokaryotes chromosome.

b) Describe the basic structure of chromatin and role of histone in it.

OR

b) Explain DNA super coiling.

c) Explain the role of topoisomerase in super coiling of DNA.

OR

c) Explain euchromatin and heterochromatin.

d) Explain nucleosome.

OR

d) Explain centromere and telomere.

e) Explain transformation with suitable example.

OR

e) Explain Hfr strain.

Q.3) **Answer the following.(Each question carries 4 marks)** 20

a) Explain secondary active transport with respect to glucose.

OR

a) Describe the active and passive transport with the help of suitable example for each.

b) Distinguish between channel protein and carrier protein.

OR

b) What is an Electrochemical gradient? Explain facilitated diffusion.

c) Explain exocytosis and endocytosis.

OR

c) Explain in detail the example of uniport.

d) What is chloride shift?

OR

d) How is ferritin and transferring transported in the plasma?

e) Draw and explain O_2 dissociation curve with a suitable example.

OR

e) How is HCO_3 transported into the plasma?

A) Answer the following.(Each question carries 3 marks)

Q.4) a) Explain agglutination. 15

OR

a) Describe lysogenic and lytic cycle. .

b) Which stages are seen in meiosis I and meiosis II?

OR

b) Difference between mitosis and meiosis.

c) What is uniport, antiport and symport.

OR

c) Explain one channel protein in brief.

Q.4) B) Answer the following. (Each question carries 2 marks)

a) Explain the terms i) epistatic gene ii) hypostatic gene.

OR

a) State the law of independent assortment.

b) Draw the structure of chromatin.

OR

b) What does transduction mean?

c) Explain osmosis.

OR

c) Explain diffusion.