

B. N. Bandodkar College of Science, Thane
S. Y. B. Sc. (Sem III) Examination 2014-15
Semester III October 2014

USBO302

Duration 2^{1/2} Hrs

Total Marks 75

- N.B. 1. All questions are **compulsory**.
 2. Figures to the right indicate full marks.
 3. Draw neat labelled diagrams wherever necessary.

Q.1 a) What is chromatography? Describe Thin layer chromatography in detail. 10

OR

a) Discuss briefly assembly and principle of column chromatography. 10

b) Describe construction and working of phase contrast microscope. 10

OR

b) Define electron microscopy and elaborate on transmission electron microscope. 10

Q.2 a) Explain non-cyclic photophosphorylation with the help of a diagram. 10

OR

a) What are C₃ plants? Briefly write a note on C₃ pathway. 10

b) Give an account on sucrose with respect to its synthesis and degradation. 10

OR

b) Comment on structure and degradation of starch in plants. 10

Q.3 a) Discuss in detail the various stages in Meiosis I. 10

OR

a) A corn plant in which the seedling stage showed glossy (g), virescent (v) and eligulate (l) leaf was crossed to plant in which the seedling stage had dull, green and ligulate leaf. When the F₁ was test crossed the following progenies were observed:

++l = 759	+++ = 03	+vl = 140	g+l = 80
gv+ = 766	gvl = 01	g++ = 158	+v+ = 73

Prepare the chromosome map for the gene g, v, l.

b) What are chromosomal aberrations? Add a note on deletion. 10

OR

b) What is crossing over? Add a note on double crossing over. 10

Q.4 Attempt **any three** of the following: 15

a) Discuss types of paper chromatography

b) Describe electromagnetic spectrum

c) Write a short note on Bar eyes in *Drosophilla melanogaster*

d) Write advantages of phase contrast microscope

e) Comment on C₄ plants and Kranz anatomy

f) Write a short note on chromosome map.