

**B.N.Bandodkar College of Science, Thane**  
**S.Y.B.Sc. Third Semester Examination, 2013**  
**USBO302**

Duration 2 hrs

Max Marks 60

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

- Q.1 a) Explain radial paper chromatography with suitable diagram. 7  
OR  
a) Explain the working and structure of Phase Contrast Microscope. 7  
b) Explain the working and structure of Scanning Electron Microscope (SEM) 8  
OR  
b) Discuss the structure and working of Transmission Electron Microscope (TEM) 8
- Q. 2 a) Describe in detail CAM pathway. 7  
OR  
a) Explain any two types of photosynthetic pigment. 7  
b) Explain synthesis and degradation of Sucrose. 8  
OR  
b) Discuss in detail C<sub>3</sub> cycle. 8
- Q. 3 a) What do you mean by crossing over? Describe different types of double cross over. 7  
OR  
a) With reference to chromosomal aberration discuss deletion. 7  
b) What is extra chromosomal inheritance? Describe petite colonies in yeast. 8  
OR  
b) With reference to chromosomal aberration discuss duplication. 8
- Q. 4 a) Answer **any three** of the following in one word/ sentence: 3  
1. Give any two examples of optical microscope.  
2. Give any two examples of basic systems used in electron microscopes.  
3. What is Photorespiration?  
4. Define carbohydrates.  
5. What are nuclear petites?  
6. What is chiasma formation?
- b) Attempt **any two** of the following: 12  
1. With the help of suitable diagram explain stationary and mobile phase of thin layer chromatography (TLC).  
2. Discuss the difference between optical and non-optical microscopes.  
3. What is linkage? Mention its properties.  
4. Describe single cross over.