

17. Buccal smear preparation for demonstration of mitochondria and golgi using vital staining.

## **MOHANLAL SUKHADIA UNIVERSITY, UDAIPUR**

### **B. Sc. BIOTECHNOLOGY I YEAR TDC (2016-17)**

#### **B. Sc. I<sup>st</sup> Year Practicals**

#### **Practical - III**

##### **(A) Fundamentals of Biochemistry**

1. Preparation of standard solutions *e.g.* normal solution, molar solution, per cent solution, ppm solution.  
Preparation of buffers-phosphate buffers, citrate buffer
2. Acid base titrations
3. To perform chemical test for the presence of following macromolecules in given sample/s:
  - (a) Test for carbohydrates (Benedict's and Fehling's Tests)
  - (b) Test for proteins (Biuret test, Million's test and anthoprotein test)
  - (c) Test for lipids/ oils (Sudan III)
  - (d) Test for polysaccharides (starch/ glycogen)
4. To extract and estimate total carbohydrates from the given plant sample by spectrophotometric method.
5. To extract and estimate total proteins (Bradford's Method) from the given plant sample by spectrophotometric method.
6. Determination of catalase activity by permanganate titration method.
7. Quantitative test for amylase activity in germinating seeds.
8. Isolation of casein from milk and determination of its isoionic precipitation point.
9. Estimation of amino acids using ninhydrin reagent.
10. Determination of iodine number of fat.
11. Determination of saponification value of fat.
12. Determination of acid value of fat.
13. Histochemical localization of biomolecules such as proteins, carbohydrates in plant tissues.
14. Use of dialysis to separate small molecules from larger molecules.

## **(B) Metabolic Pathways**

1. To extract and separate the chlorophyll pigments by paper chromatography.
2. To separate the chlorophyll pigments by thin layer chromatography.
3. To separate chlorophyll pigments by chemical methods.
4. To prepare the absorption spectrum and determine  $\lambda$  max of various chloroplast pigments using spectrophotometer.
5. To find  $\lambda$  max for proteins.
6. Study of transport across membrane by potential measurement.
7. Phytochemical tests of the following secondary metabolites: tannins, anthocyanins, lignins
8. Demonstration of respiratory enzymes (peroxidase, catalase, dehydrogenase) in plant tissues.
9. To study permeability of plasma membrane using different concentrations of organic solvents

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**I<sup>st</sup> Year TDC Biotechnology  
Practical I**

Incorporating Paper I and II

**Paper I:** Plant Biology and Diversity

**Paper II:** Animal Biology and Diversity

Duration: 5 hours

Max Marks: 75

A. Major Exercise from Paper I	15
B. Major Exercise from Paper II	15
C. Minor Exercise from Paper I	10
D. Minor Exercise from Paper II	10
Spots 5 x 3	15
Viva-voce	05
Record	05

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**I<sup>st</sup> Year TDC Biotechnology**

**Practical II**

Incorporating Paper III and IV

**Paper III:** Microbial Biology and Diversity

**Paper IV:** Cell Biology, Genetics and Evolution

Duration: 5 hours

Max Marks: 75

A. Major Exercise from Paper III	15
B. Major Exercise from Paper IV	15
C. Minor Exercise from Paper III	10
D. Minor Exercise from Paper IV	10
Spots 5 x 3	15
Viva-voce	05
Record	05

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**B. Sc. BIOTECHNOLOGY I YEAR TDC (2016-17)**

**I<sup>st</sup> Year TDC Biotechnology**

**Practical III**

Incorporating Paper V and VI

**Paper V:** Fundamentals of Biochemistry

**Paper VI:** Metabolic Pathways

Duration: 5 hours

Max Marks: 75

A. Major Exercise from Paper V	15
B. Major Exercise from Paper VI	15
C. Minor Exercise from Paper V	10
D. Minor Exercise from Paper VI	10
Spots 5 x 3	15
Viva-voce	05
Record	05