

Syllabus

Time Allowed : Three hours

Max. Marks: 30

Evaluation Scheme		Marks
One Major Experiment Part A (Experiment No- 1,3,7,8)		05
One Minor Experiment Part A (Experiment No- 6,9,10,11,12,13)		04
Slide Preparation Part A (Experiment No- 2,4,5)		05
Spotting Part B		07
Practical Record + Viva Voce	Credit to the students' work over the academic session may be given	04
Project Record + Viva Voce		05
Total		30

A. List of Experiments

1. Study and description of three locally available common flowering plants, one from each of the families Solanaceae, Fabaceae and Liliaceae (Poaceae, Asteraceae or Brassicaceae can be substituted in case of particular geographical location) including dissection and display of floral whorls, anther and ovary to show number of chambers (floral formulae and floral diagrams). Types of root (Tap and adventitious); stem (herbaceous and woody); leaf (arrangement, shape, venation, simple and compound).
2. Preparation and study of T.S. of dicot and monocot roots and stems (primary).
3. Study of osmosis by potato osmometer.
4. Study of plasmolysis in epidermal peels (e.g. Rhoeo leaves).
5. Study of distribution of stomata in the upper and lower surface of leaves.
6. Comparative study of the rates of transpiration in the upper and lower surface of leaves.
7. Test for the presence of sugar, starch, proteins and fats. Detection in suitable plant and animal materials.
8. Separation of plant pigments through paper chromatography.
9. Study of the rate of respiration in flower buds/leaf tissue and germinating seeds.
10. Test for presence of urea in urine.
11. Test for presence of sugar in urine.
12. Test for presence of albumin in urine.
13. Test for presence of bile salts in urine.

B. Study/observation of the following (spotting)

1. Study of the parts of a compound microscope.
2. Study of the specimens/slides/models and identification with reasons - Bacteria, Oscillatoria, Spirogyra, Rhizopus, mushroom, yeast, liverwort, moss, fern, pine, one monocotyledonous plant, one dicotyledonous plant and one lichen.
3. Study of virtual specimens/slides/models and identification with reasons - Amoeba, Hydra, liverfluke, Ascaris, leech, earthworm, prawn, silkworm, honeybee, snail, starfish, shark, rohu, frog, lizard, pigeon and rabbit.
4. Study of tissues and diversity in shapes and sizes of plant and animal cells (palisade cells, guard cells, parenchyma, collenchyma, sclerenchyma, xylem, phloem, squamous epithelium, muscle fibers and mammalian blood smear) through temporary/permanent slides.
5. Study of mitosis in onion root tip cells and animals cells (grasshopper) from permanent slides.
6. Study of different modifications in roots, stems and leaves.
7. Study and identification of different types of inflorescence (cymose and racemose).
8. Study of imbibition in seeds/raisins.

9. Observation and comments on the experimental set up for showing:
- Anaerobic respiration
 - Phototropism
 - Effect of apical bud removal
10. Study of human skeleton and different types of joints with the help of virtual images/models only.
11. Study of external morphology of cockroach through virtual images/models.

QUESTION PAPER DESIGN

1. Board Examination – Theory

Time: 3 Hours

Max. Marks: 70

S. No.	Typology of Questions	Very Short Answer (VSA)	Short Answer-I (SA-I)	Short Answer-II (SA-II)	Long Answer (LA)	Total Marks	% Weightage
		2 Mark	2 Marks	3 Marks	5 Marks		
1.	Remembering-Knowledge based Simple recall questions, to know specific facts, terms, concepts, principles, or theories, Identify, define, or recite, information)	2	1	1	—	7	10%
2.	Understanding-(Comprehension - To be familiar with meaning and to understand conceptually, interpret, compare, contrast, explain, paraphrase information)	—	2	4	1	21	30%
3.	Application (Use abstract information in concrete situation, to apply knowledge to new situations, Use given content to interpret a situation, provide an example, or solve a problem)	—	2	4	1	21	30%
4.	Evaluating & Analysis - Classify, Compare, Contrast, or differentiate between different pieces of information, Organize and/or integrate unique pieces of information from a variety of sources)	2	1	1	1	12	17%
5.	Creating - (Appraise, judge, and/or justify the value or worth of a decision or outcome, or to predict outcomes based on values)	1	1	2	—	9	13%
TOTAL		5×1=5	7×2=14	12×3=36	3×5=15	70(27)	100%

2. Practical : 30 marks; Duration; 3 hours