

POST GRADUATE PROGRAMME IN BIOTECHNOLOGY

1. At each of the Previous and Final Year Examination in a subject, a candidate must obtain for a pass (i) at least 36 % marks of the aggregate marks in all the papers prescribed at the examination, and (ii) atleast 36% marks in practical, wherever prescribed, at the examination; provided that if a candidate fails to secure 25% marks in each individual paper of theory at any of the examination and also in the dissertation; wherever prescribed, he/she shall be deemed to have failed at the examination, notwithstanding his/her having obtained the minimum percentage of marks required in the aggregate for the examination. Division will be awarded at the end of the Final Examination of the combined marks obtained at the Previous and the Final Examinations taken together as noted below. No Division will be awarded at the Previous Examination.

First Division : 60 Percent	} of the total aggregate marks of Previous and Final year taken together
Second Division: 48 Percent	
Third Division : 36 Percent	

Note : The candidate is required to pass separately in theory and practicals.

2. Dissertation may be offered by regular students only in lieu of one paper of Final Year Examination as prescribed in the syllabus of the subject concerned. Only such candidates will be permitted to offer dissertation who have secured atleast 50% marks in the aggregate at the previous examination.

Note: Dissertation shall be type-written and shall be submitted in triplicate, so as to reach the Controller of Examinations atleast two weeks before the commencement of Examination.

3. There shall be atleast eight theory papers in Post-Graduate Examination, 4 in Previous and 4 in Final year examinations of 100 marks each unless and otherwise prescribed. The non-credit papers wherever prescribed will remain as such. The marks of these non-credit papers will not be counted for division but passing in the same is compulsory.
4. Each theory paper will be of three hours duration.
5. Wherever practicals are prescribed the scheme will be included in the syllabus.
6. A candidate who has completed a regular course of study for one academic year and passed M.A. / M.Sc./ M.Com. Previous Examination of the university shall be admitted to the Final Year

Examination for the degree of Master of Arts / Master of Science / Master of Commerce provided that he / she has passed in atleast 50% of the papers at the previous examination by obtaining atleast 36% marks in each such paper.

- (a) For reckoning 50% of the papers at the previous examination, practical will be included and one practical will be counted as one paper.
- (b) Where the number of papers prescribed at the previous examination is an odd number it shall be increased by one for the purpose of reckoning 50% of the paper.
- (c) Where a candidate fails for want of securing minimum aggregate marks but secured 36% marks in atleast 50% of the papers, he/she will be exempted from re-appearing in those papers in which he/she has secured 36% marks.
- (d) Where the candidate secures requisite minimum percentage in the aggregate of all the papers but fails for want of the requisite minimum percentage of marks prescribed for each individual paper he/she shall be exempted from re-appearing in such paper (s) in which he / she has secured atleast 25% marks.

7. A candidate who has been declared fail at the Final Year Examination for the degree of Master of Science / Arts, Commerce shall be exempted

from re-appearing in a subsequent year in the following papers :

- (a) Where a candidate fails for want of securing the minimum percentage in the aggregate marks, he/she shall be exempted from re-appearing in such paper (s) Practical (s). Dissertation in which he/she has secured atleast 36% marks; provided he/she is passing in atleast 55% of the papers. (Here passing in each paper requires 36% marks).
- (b) Where a candidate secures the minimum requisite including dissertation wherever prescribed but fails for want of minimum percentage of marks prescribed for in each individual paper / dissertation, he / she shall be exempted from reappearing in such paper (s) dissertation in which he/she has secured atleast 25% marks provided he/she is passing in atleast 50% of the paper (here passing in each paper requires 25% marks)

M.SC. PREVIOUS BIOTECHNOLOGY 2004–2005

Paper/Practical	Max. Marks
Paper-I : Biochemistry, Biophysics and Biostatistics	100
Paper-II : Cytology, Genetics and Molecular Biology	100
Paper-III : Principles of Microbiology	100
Paper-IV : Principles and Practices of Plant and Animal Cell Culture	100
Practical-I : Based on the contents of Paper I & II	100
Practical-II : Based on the contents of Paper III & IV	100

M.SC. FINAL BIOTECHNOLOGY 2005–2006

Paper/Practical	Max. Marks
Paper-I : Genetic Engineering	100
Paper-II : Environmental Biotechnology	100
Paper-III : Immunology, Enzymology and Microbial Technology	100
Paper-IV : Applied Plant Biotechnology (Special Paper)	100

PRACTICALS

Practical-I	Based on the contents of Papers I, II	100
Practical-II	Based on the contents of Paper III and special paper (IV).	100

EDUCATIONAL TOURS

Students will visit specialized laboratories, advanced centres, libraries, databases and production facilities, industries each year and will submit an interaction report.

**M.SC. PREVIOUS BIOTECHNOLOGY
2004–2005**

**PAPER–I
BIOCHEMISTRY, BIOPHYSICS AND
BIOSTATISTICS**

Duration: 3 hrs

M.M.: 100

UNIT – I

Carbohydrates : General properties, glycolysis, Krebs' cycle, glycogenesis, oxidative phosphorylation (mechanism). Pentose Phosphate Pathway. CO₂ fixation (C₃ and C₄ cycles). Photophosphorylation, Photorespiration.

Fatty acids : General properties Synthesis of saturated fatty acids and β-oxidation, glyoxylate cycle.

UNIT – II

Nitrogen metabolism : Amino acids (general properties and biosynthesis) urea cycle. Protein structure (primary, secondary, tertiary and quaternary), Ramachandran plot, Helicity measurement (CD) hydrophobic and hydrophilic interactions. Alkaloids, Vitamins and Co-enzyme (biological and biochemical functions).

UNIT – III

DNA Protein interactions, elementary account of DNA drug interactions, Transportation across biomem-

branes: passive transport, facilitated transport, active transport, (Na⁺ K⁺ and ATPase pump). Effect of UV and X-rays on nucleic acids.

Introduction to centrifugation, electrophoretic techniques (including isoelectric focusing), tracer techniques, autoradiography, chromatography, spectrophotometry, spectrofluorometry. HPLC, GLC.

UNIT – IV

Brief description of tabulation of data and their graphical representation, measures of central tendency and dispersion: Mean, median, mode, range, standard deviation, variance.

Simple linear regression and correlation.

UNIT – V

Elementary idea of probability, definition and properties of binomial, poisson and normal distributions.

Elementary idea of random sampling, selection of simple random samples from a finite population, definition of sampling distribution, sampling variance and standard error.

Idea of two types of errors and level of significance, test of significance, chi-square test of independence and homogeneity test based on Z and T statistics.

Introduction to microcomputers, disk operating system (DOS), elementary idea of statistical computational packages, LAN, E-mail and Internet.

