

CIRCULAR :-

A reference is invited to the Ordinances, Regulations and syllabi relating to the Master of Science (Parts I & II) degree course vide Pamphlet No.175 and to this office Circular No. UG. /166/ of 2008 dated 22nd April, 2008 and No. UG./ 133 of 2009 dated 4th May, 2009 and the Head, University Department of Life Sciences, the Principals of the affiliated colleges in Science and the Directors/ Heads of the recognized Institutions concerned are hereby informed that the recommendation made by the Ad-hoc committee appointed by the Academic Council to advise it on all matters relating to the courses of study and examinations in the subject of Biotechnology of the B.Sc. and M. Sc. degree course at its meeting held on 17th January, 2009 has been accepted by the Academic Council at its meeting held on 13th February, 2009 vide item No. 4.7 and that, in accordance therewith, the Paper (Theory and Practical) pattern for the M. Sc. Part-I and Part-II examination in the subject of Biotechnology is revised as per Appendix and that the same has been brought into force with effect from the academic year 2009-2010.

MUMBAI-400 032
4th May, 2009

PRIN K VENKATARAMANI
REGISTRAR

To,

The Head, University Department of Life Sciences, the Principals of the affiliated colleges in Science and the Heads of the recognized Institutions concerned.

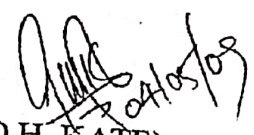
A.C./4.7/13.02.2009

No.UG/ 134 - A of 2009, MUMBAI-400 032

4th May, 2009

Copy forwarded with compliments for information to :-

- 1) The Dean, Faculty of Science
- 2) The Chairman, Ad-hoc Board of Studies in Biotechnology.
- 3) The Controller of Examinations,
- 4) The Co-Ordinator, University Computerization Centre,


(D.H. KATE)
DEPUTY REGISTRAR
(U.G./P.G. Section)

Copy to :-

The Director, Board of College and University Development, , the Deputy Registrar (Eligibility and Migration Section), the Director of Students Welfare, the Executive Secretary to the Vice-Chancellor, the Pro-Vice-Chancellor, the Registrar and the Assistant Registrar, Administrative sub-center, Ratnagiri for information .

The Controller of Examinations (10 copies), the Finance and Accounts Officer (2 copies), Record Section (5 copies), Publications Section (5 copies), the Deputy Registrar, Enrolment, Eligibility and Migration Section (3 copies), the Deputy Registrar, Statistical Unit (2 copies), the Deputy Registrar (Accounts Section), Vidyanagari (2 copies), the Deputy Registrar, Affiliation Section (2 copies), the Director, Institute of Distance Education, (10 copies) the Director University Computer Center (IDE Building), Vidyanagari, (2 copies) the Deputy Registrar (Special Cell), the Deputy Registrar, (PRO) . the Assistant Registrar, Academic Authorities Unit (2 copies) and the Assistant Registrar, Executive Authorities Unit . They are requested to treat this as action taken report on the concerned resolution .

UNIVERSITY OF MUMBAI



Paper (Theory and
Practical) Pattern for
M.Sc. (Part-I & Part-II)
In
Biotechnology

**(W.e.f. the academic year 2008-09 & 2009-10
respectively)**

Paper(Theory) and Practical Pattern
M.Sc. (Part-I) in Biotechnology (w.e.f. academic year 2008-09)

Sr. No	Paper	Total Marks
Theory		
1	Paper I	75M
2	Paper II	75M
3	Paper III	75M
4	Paper IV	75M
	Total	300M

Practicals

5	Paper I	50M
6	Paper II	50M
7	Paper III	50M
8	Paper IV	50M
	Total	200M

GRAND TOTAL

500M



Pattern for Theory Papers of 75M each

Q1.	Unit I	15M
	A	10M
	B	5M
	Or	
	A	8M
	B	7M
Q2.	Unit II	15M
	A	10M
	B	5M
	Or	
	A	8M
	B	7M
Q3.	Unit III	15M
	A	10M
	B	5M
	Or	
	A	8M
	B	7M

Q4. Unit IV

A

15M

B

10M

5M

Or

A

B

8M

7M

Q5. Short notes encompassing topics from all the four units
Any 3 out of 5 (each carrying 5 marks)

15M

Practical I

50M

Q1. Major experiment (Day I, II)

25M

1. Isolation of chloroplast by sucrose density gradient centrifugation and Demonstration of Hill's reaction using DCPIP.
2. Detection of LDH Isozymes from muscle by electrophoresis.
3. Study of protein complexes using PAGE and detection with CBB and Silver staining.
4. Determine the specific activity of the purified enzyme and give protocol for its purification.

Q2. Minor experiment (Day I)

15M

1. Separation of betalains by gel filtration.
2. Study of Hemoglobin banding pattern
3. Soxhlet
4. Protein estimation by Bradford's method

Q3. Viva (Day II)

5M

Q4. Journal

5M

Practical II

50M

Q1. Major experiment (Day II)

20M

1. Perform serum electrophoresis (horizontal)
2. Perform Radial Immunodiffusion for quantification of antigen.
3. Separation of lymphocytes and Viability testing

Q2. Minor experiment (Day II)

10M

1. Perform DOT ELISA
2. Perform DOT-blot for protein
3. Demonstration of phagocytosis.

Q3. Study questions (Day I)

10M

5M Books

3+2M Practicals

Q4. Viva (DayII)

5M

Q5. Journal

5M

Practical III

50M

Q1. Major experiment (Day I)

25M

1. Perform transformation of bacteria using any plasmid
2. Bacterial conjugation
3. To perform replica plate technique

Q2. Minor experiment (Day II)

15M

1. Expression of recombinant proteins.
2. Extraction of genomic DNA from bacteria or plant material
3. To set up a restriction digestion reaction

Q3. Viva (Day II)

5M

Q4. Journal

5M

Practical IV

50M

Q1. Major experiment (Day III)

15M

1. Viscosity studies of proteins
2. Study of ATPases.

Q2. Minor experiment (Day I)

10M

1. To calibrate and validate measuring containers and equipments (auto pipettes, measuring cylinder, balance, autoclave etc.)2/3
2. PCR amplification.1/3

Q3. Identification (problems) (2 questions) (Day III)

10M

1. 2-D electrophoresis
2. HPLC (graph)
3. GC

Q4. Present a seminar on any research paper obtained from a recent (past 5 years) journal with reference to Theory Paper IV

10M

Q5. Journal

5M

Paper (Theory) and Practical Pattern M.Sc.(Part-II) in Biotechnology
(W.e.f. academic year 2009-10)

Paper V	75 marks
Paper VI	75 marks
Paper VII	75 marks
Paper VIII	75 marks
Practicals (inclusive of Viva-voce and journal)	100 marks
Dissertation (inclusive of Viva, Presentation, Project Report)	100 marks
Theory and practical total marks	500 marks

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