

DEPARTMENT OF BOTANY

CLASS-B.Sc. Part-III (Biotech)

SESSION: 2020-21

PAPER –I

GENERAL BIOTECHNOLOGY

Plant, Environment and Industrial Biotechnology

Unit-I

- Plant cell and tissue culture: General introduction , history, scope.
- Application of tissue culture.
- Concept of cellular differentiation.
- Agro bacterium. Ti and Ri-plasmid.
- Bt gene, Molecular marker (RFLP,RAPD), edible vaccines.

Unit-II

- Organogenesis , Embryogenesis, protoplast isolation and fusion.
- Germplasm storage and Cryopreservation.
- Anther and ovary culture.

Unit-III

- General introduction and scope of environmental Biotechnology.
- Environmental pollution and its types.
- Control of pollution of through biotechnology.
- Wastewater treatment :- Physical, Chemical and Biological.

Unit-IV

- Biofertilizer , Biopesticides , IPR.
- Global environmental problem-general introduction, Ozone depletion, Acid rain.
- Green house effect.

Unit-V

- Bioreactors and its types.
- Fermentation (Lactic acid, alcohol).
- Maintenance of Industrial micro-organisms.
- Food technology – Introduction, canning, packing and food preservation.

APPROVED BY THE BOARD OF STUDIES ON

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Dr. J.N.Verma	CHAIRMAN	
Dr. J K Verma	SUBJECT EXPERT(V. C. Nominee)	
Dr. S. Moghae	SUBJECT EXPERT(Principal Nominee)	
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Dr. Aruna Shrivastava	MEMBER OF THE DEPARTMENT	
Mrs. Deepa Shrivastava	MEMBER OF THE DEPARTMENT	
Dr. V. Acharya	MEMBER OF THE DEPARTMENT	
Dr. B.M.Lall	MEMBER OF THE DEPARTMENT	
Dr. Neetu Harmukh	MEMBER OF THE DEPARTMENT	
Mrs. Vinita Sahu	MEMBER OF THE DEPARTMENT	

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PAPER –II

Immunology

Unit-I

- Immunology- general concept, history and development.
- Immune system and Immunity, organization of immune system
- Antigen and antibody and its types.

Unit-II

- Cell involved in immune system, type and cells, basic structure and function ,Cytokines.
- Cell mediated immunity interferons , hypersensitivity.

Unit-III

- Antigen- Antibody interaction, principles and types.
- Immunohaematology – general concept blood group system Rh factor Medical application of blood groups.

Unit -IV

- Origin and diversity in immune system.
- Effectors mechanism
- Immunity of infection disease monoclonal antibodies.

Unit- V

➤ Autoimmune disease, hemolytic anemia, Rheumatoid arthritis, insulin depend diabetes,

Mysthania gravis, organ transplantation , immune deficient disease, cancer ,AIDS.

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PRACTICAL SCHEME

B.Sc. Part-III (Biotech) 2020-21

Time:4 hrs

M.M.50

S.NO.	TITLE	MARKS
1.	Experiment based on paper-I i. Plant tissue culture ii. Environment /Industrial	08 07
2.	Experiment based on paper-II	15
3.	Spots 05(based on paper-I &II, at least two spots from each paper)	10
4.	viva-voce	05
5.	Sessional	05

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