

60  
hrs.

Part A :- Microbial Biotechnology

Unit 1

12 hrs.

1.1. Microorganisms and classification;  
Microbial phylogeny and current  
classification of bacteria.

1.2. Morphology and cell structure of  
major groups of microorganisms  
eg. Bacteria, Algae, Fungi, Protozoa  
and unique features of viruses.

1.3. Nutritional categories of micro-  
organisms, methods of isolation,  
Purification and preservation

1.4. Types of microbial culture and  
its growth kinetics: Batch, Fed  
batch and continuous culture.

Measurement of growth.

1.5. Endospores and sporulation of  
bacteria.

Unit 2 :-

18 hrs

2.1. Control of Microorganisms: By  
physical, chemical and chemotherapeu-  
tic Agents.

2.2. Water microbiology: Bacterial  
pollutants of water, coliforms and  
non coliforms.

2.3. Important microorganisms in  
food microbiology: Moulds, Yeasts,  
bacteria

2.4. Major food borne infections and intoxications. Preservation of various types of foods

2.5. Fermented foods - Purification and characterization of proteins. Upstream and downstream processing, solids and liquid handling. Distribution of microbial cells, centrifugation, filtration of fermentation broth, Ultracentrifugation, liquid extraction, ion-exchange recovery of biological products. Experimental model for design of fermentation systems.

2.6. Microbial production of ethanol, amylase, lactic acid and single cell proteins.

2.7. Microbial insecticides - microbial flavours and fragrances, newer antibiotics and anti-cancer agents.

## Part B: IMMUNOTECHNOLOGY.

### Unit 3:

3.1. Immune System: Types, structure of Immunoglobulins (Antibodies)

3.2. Humoral and cellular immune responses, T-lymphocytes and

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immune response (Cytotoxic T-cell, helper T-cell, suppressor T-cells, memory T-cells) T-cell receptors, B-lymphocytes and immune response (plasma-cells, memory B cells) B-cell receptors.

3.3. clonal selection theory, allotype, idiotype, antibody diversity.

3.4. Major Histocompatibility complexes: class I & class II MHC antigens, antigen processing

3.5. Immunity to infection, Auto-immune diseases, Immuno-deficiency - AIDS.

## Unit 4:

4.1. Vaccines and Vaccination - adjuvants, cytokines, DNA Vaccines, recombinant Vaccines, bacterial Vaccines, Viral Vaccines, vaccines to other infectious agents. passive & active immunization.

4.2. Introduction to immunodiagnosis - RIA, ELISA.

4.3. Immune modulators.

4.4. Antigen-Antibody interactions, cross reactivity, epitope mapping.

4.5. Identification of immune cells, Antibody engineering, Microarrays.

## Practicals

1. Isolation of chromosomal DNA from E. coli.
2. Plasmid DNA isolation.
3. Staining methods, Gram's staining, Acid fast staining, Capsule, spore staining.
4. Motility of bacteria by hanging drop method.
5. Preparation of media and sterilization of methods, Methods of isolation of bacteria from different sources.
6. Enumeration of microorganism Total & Viable count.
7. Analysis of water quality and MPN test.
8. Production and analysis of ethanol.
9. Production and analysis of lactic acid.

### References:-

- 1) Industrial Microbiology - L.E. Casida.
- 2) Introduction to Biotechnology - P.K. Gupta.
- 3) Kubly's Immunology - Goldsby.

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Part A: - Plant Biotechnology

60 hrs.

Unit 1: -

12 hrs.

1.1. Historical perspectives of plant tissue culture and Basic requirement for tissue culture laboratory.

1.2. Culture mediums for plant tissue culture - MS medium, B5 medium WPM medium and plant growth regulators and differentiation.

1.3. Sterilization of media - steam, dry and filter sterilization. Explant sterilization.

1.4. Method of tissue culture. formulation of medium explants collection, surface sterilization inoculation.

1.5. callus induction, subculture and regeneration of plants.

1.6. suspension cultures - growth & subculture, types and synchronization of suspension cultures.

Unit 2: -

2.1. Meristem cultures and its use in production of virus free plants.

2.2. Clonal propagation of plants - medicinal plants and endangered plants - methods and advantages.

2.3. Culture of plant cells for the

extraction of secondary metabolites - alkaloid, flavones, pharmaceutical products.

2.4. Anther culture and production of androgenic haploids.

2.5. Somaclonal Variation - Sources of somaclonal variation to crop improvement, Embryo rescue.

2.6. Protoplast isolation (mechanical and enzymatic methods) culturing and regeneration of protoplasts. Different methods of protoplast fusion (mechanical fusion, chemofusion, electrofusion).

2.7. Artificial seeds - Production, application & limitation.

2.8. Genetic engineering in plants. Use of *Agrobacterium tumefaciens* and *A. rhizogenes*. Ti plasmids strategies for gene transfer to plant cells. Direct transfer method in plants. Use of plant viruses as episomal expression vectors.

2.9. Nitrogen fixation, Role of Nif, Nod & Hup genes in nitrogen fixation.

Part B - Animal Biotechnology 12 hrs.

Unit 3 :-

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- 3.1. Introduction to animal tissue culture, Tissue culture techniques & applications.
- 3.2. Gene Transfer methods in Animals Microinjection and retroviruses.
- 3.3. Introduction to stem cell Technology and its applications.
- 3.4. Introduction to transgenesis Genetic engineering in animals. Production and application of transgenic mice ES cells in cloning.
- 3.5. Growth factors - Promoting proliferation of animal cells EGF, FGF, PDGF, IL-1, IL-2, NGF and Erythropoietin.

**Unit 4: 18 hrs.**

- 4.1. Animal diseases need help of Biotechnology - Foot & mouth disease. Coccidiosis, Trypanosomiasis Theileriosis.
- 4.2. Hybridoma Technology - HAT selection and production of monoclonal antibodies.
- 4.3. Genetic Engineering in animals for valuable products (Vaccines, growth hormones)
- 4.4. Animal propagation - Artificial.

Insemination, Animal clones  
Dolly, IVF & ET technique, Embryo  
sexing.

H.5. Gene therapy - Types and  
methods Vectors in gene therapy.

H.6. Application of transgenic  
animals in milk production  
meat production and  
aquaculture.

H.7. Transgenic technology for  
development of animals as  
bioreactors.

H.8. Ethical considerations for  
transgenic animals.

### PRACTICALS

1. Sterilization techniques in tissue culture. Glassware sterilization, media sterilization, Laboratory sterilization.
2. Isolation of cells from chicken liver.
3. Isolation of total DNA from plant tissue (Coconut endosperm)
4. Preparation of simple growth medium, full strength, half strength, solid and liquid.
5. Preparation of complex nutrient medium (Murashige & Skoog)

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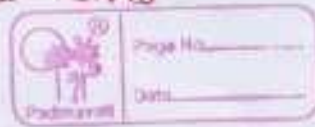


6. Perform plant tissue culture technique for selection of somaclones.
7. Preparation of Hanks Balanced Salt solution
8. Preparation of Minimal Essential Growth medium
9. Isolation of DNA from animal tissue (cattle liver)

#### References:-

1. Plant Tissue culture and Practice.  
- Bhojwani SS, Razdan.
2. Gene cloning and DNA analysis by  
Brown T.A.
3. Tissue culture by Bhan.

B.Sc V Semester  
SEC - 1. Forensic Science and  
Environmental  
Monitoring  
SEC BTT - 1.



Part A. Forensic Science

15 hrs

Unit 1.

1.1. Introduction and principles of forensic science, forensic science laboratory organization, service tools and techniques in forensic science.

Branches of forensic science.

1.2. Causes of crime, Role of *modus operandi* in criminal investigation. Classification of injuries and their medico legal aspects.

1.3. Method of assessing various type of deaths.

1.4. Classification of fire arms and explosives. Introduction to Internal, external and terminal ballistics. Chemical evidence for explosives.

04 hrs

Unit 2.

2.1. General and individual characteristics of handwriting. Examination and comparison of hand writing and analysis of ink various samples.

2.2. Role of toxicologist. Significance of toxicological findings.

2.3. Fundamental principles of finger printing, classification of fingerprints

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Development of fingerprint as science for personal identification

2.4. Principle of DNA fingerprinting

Application of DNA profiling in forensic medicine.

2.5. Investigation tools & evidence

preservation search and seizure of computer. Introduction to Cyber security.

04 hrs

Part B: Environmental monitoring

Unit 3.

3.1. Modern fuels and their conventional impact: Biogas, biohydrogen gas & Bioethanol production

3.2. Bioremediation of soil and water contaminated with oil spills, heavy metals and detergents.

3.3. Phytoremediation - Degradation of pesticides and other toxic chemicals by microorganisms (Degradation of chlorinated hydrocarbon).

3.4. Solid waste disposal and monitoring methods (composting, vermicomposting)

3.5. Liquid waste disposal and sources. Treatment of municipal waste and industrial effluents.

3.6. Biomining and extraction of pure metals by microbes.

07 hrs

### Practicals

1. Collection and handling of toxicological samples.
2. Collection and handling of petroleum samples
3. Collection & <sup>Handling</sup> of murder case samples

### References:-

1. B. B. Nanda & R. K. Tiwari Forensic science in India. - A vision for twenty first century.
2. Kim Y. J. Advanced Environmental monitoring.

Lesson plan B.Sc I, III, V  
2021-22 Sem.

Slaff: Smt. Homalatha S.A.

Month	Topic	Hours Available	Hours Allot-ed
	B.Sc III sem.		
<u>Oct 2021</u>	Immune system - Types, structure, of Immunoglobulins (Antibodies). Humoral and cellular immune response. T-lymphocytes and immune response (Cytotoxic T-cells, helper T cell, suppressor T cell, memory T-cells) T-cell receptors, B-lymphocytes and immune response (Plasma cells, memory B cells B-cell receptors clonal selection theory, alleotypes, idiotypes, antibody diversity)	12	12.
<u>NOV 2021</u>	Major histocompatibility complex class I and class II MHC antigens, antigen processing Immunity to infection, Autoimmune diseases, Immune deficiency - AIDS. Vaccines and Vaccination - adjuvants, cytokines DNA Vaccines, recombinant Vaccine bacterial Vaccines Viral Vaccines Vaccines to other infectious agents passive and active immunization	12	12

Month	Topic	Days Available	Days Allocated	Month
	Introduction to immune diagnostics - RIA, ELISA. Immune modulation, Antigen - Antibody interaction cross reactivity epitope mapping, Identification of immune cells, Antibody engineering, Microarrays			Jan 2022
Dec 2021	Microorganisms and classification 14 Microbial phylogeny and current classification of bacteria Morphology and cell structure of major groups of microorganisms eg Bacteria, Algae, Fungi Protozoa, Unique features of viruses. Nutritional classification of microorganisms methods of isolation Purification and preservation Types of microbial culture its growth kinetics. Batch, Fedbatch and continuous culture Measurement of growth Endospores and sporulation in bacteria	14	18	



Sl. No.	Month	Topic	Lhs Available	Lhs Attended
		control of microorganisms - by physical, chemical and chemotherapeutic agents.		
	Jan 2022	water microbiology : bacterial pollutants of water, coliforms and non coliforms, Important microorganisms in food microbiology : Moulds, Yeast bacteria Major food born infections and intoxicants Preservation of various types of foods Fermented food purification and characterization of proteins, Upstream and downstream processing.	14	14.

Month	Topic	Hrs Avail	Hrs Allocated	Month	
	<b>B.Sc V Sem DSEBTT-1.</b>				
Oct 2021	Historical perspectives of plant tissue culture and basic requirement for tissue culture laboratory culture medium for plant tissue culture MS medium, BG Medium and WPM medium and plant growth regulators, differentiation sterilization of media - steam dry filter, explant sterilization Method of tissue culture callus induction, subculture regeneration of plants. suspension culture, synchronization of suspension culture	12	12	Dec 2021	Max Kin gate and of of alk ical and Som Sele apt Proc and of proc ati plo tum Ti mel low vecl
NOV 2021	Introduction to animal tissue culture, technique and its applications Gene transfer method in Animals microinjection and retrovirus Introduction to stem cell Technology and application Introduction to biotransgenesis Genetic engineering in animals Growth factors EGF, FGF, PDGF, IL-1, IL-2 Erythropoietin	12	12	Jan 2022	Ani of mou



Sr. No.	Month	Topic	Days Available	Days Attended
2	Dec 2021	<p>Meristem culture, its uses in virus free plants. clonal propagation in plants - medicinal plants and endangered plants. culture of plant cells for the extraction of secondary metabolites - alkaloid, flavones, pharmaceutical products. Anther culture and androgenic haploids. Somaclonal variations - sources selection, progeny, testing applications Embryo rescue. Protoplast isolation. culture and regeneration and fusion of protoplasts. Artificial seeds production, applications limitations. Genetic engineering in plants - Use of <i>Agrobacterium tumefaciens</i> and <i>A. rhizogenes</i> Ti plasmids Gene transfer methods in plants. Gene targeting episomal expression vectors.</p>	16	16
	Jan 2022	<p>Animal diseases need help of Biotechnology. Foot and mouth disease. coccidiosis</p>	14	16

Month

Topic

Lhrs Available

Lhrs Attended

Day/dates

Sem

Trypanosomiasis, Theileriosis  
Hybridoma technology, HAT  
Selection & production of mono-  
clonal antibodies. Genetic  
engineering in animals for  
valuable products (Vaccins,  
growth hormones). Animal  
propagation - Artificial insemi-  
nation. Animal clones (Dolly)  
IVF & ET Technique. Embryo  
sexing. Gene therapy Types &  
methods. Vectors in gene therapy.  
Applications of transgenic  
animals in <sup>milk</sup> production, meat  
production & aquaculture  
Transgenic technology for  
development of animals as  
bioreactors. Ethical consider-  
ation for transgenic animals.

Thu.  
7.10.21

B.Sc

Fri  
8.10.21

B.Sc

Sat  
9.10.21

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Mon  
11.10.21

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Tue  
12.10.21


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Oct 2021

	Page No. _____
	Date _____

no. dated	Day/dt	Sem	class	Topic covered	Sign
	Ther. 7.10.21	B.sc I	9.30	Given syllabus.	
			10.20 <sub>AM</sub>	Admission counselling	
		B.sc V	B 12.50	Preparation of notes	
	Fri 8.10.21		10.20	Admission Counselling	
		B.sc I	2-30 PM	Introduction to Biotechnology	<u>100</u>
	Sat 9.10.21		10.20	Admission counselling	<u>100</u>
		B.sc V	12.50	Library reference.	<u>100</u>
	Mon 11.10.21		10.20	Admission counselling	<u>100</u>
		B.sc V	12.50	Given Syllabus	<u>100</u>
		B.sc III	2.30	Introduction - Immune system	<u>100</u>
	Tue 12.10.21		10.20	Admission counselling	<u>100</u>
		B.sc V	12.50	Introduction Plant biotechnology	<u>100</u>
		B.sc III	2.30 PM	Types of Immune system	<u>100</u>

Day/date	class	Time	Topic covered	Sign	Day/date	class
Wed 13/10/21			WNF - New body formed Inauguration - Function.	<u>lll</u>		I Sem
Thu 14/10/21			Rayudha puja		Sat 23/10/21	III Sem
15/10/21			Dusseera festival		Mon 25/10/21	
Sat 16/10/21		10:20	Admission counselling	<u>lll</u>	Tue 7/11/21	
	V Sem	12:50	Generate & acquire immunity	<u>lll</u>	Tue 8/11/21	
Mon 18/10/21		10:20	Admission counselling	<u>lll</u>		
Tue 19/10/21			H - Milad		Tue 9/11/21	
20/10/21			Yalmiki Jayanthi			V Sem
Thu 21/10/21		10:20	Admission counselling	<u>lll</u>		III Sem
	V Sem	2:50	Structure of Ig G	<u>lll</u>	10/11/21 and 11/11/21	
	III Sem	3:20	Immunoglobulin structure	<u>lll</u>		
Fri 22/10/21		10:20	Admission counselling	<u>lll</u>	Fri 12/11/21	
	V Sem	12:50	In-Vitro culture in Plant tissue culture	<u>lll</u>	Sat 13/11/21	III Sem
						I Sem

NOV 2021



Day/Date	Class	Time	Topic Covered	Sign
	I sem	2.30	Introduction - cell biology	<u>1100</u>
	III sem	3.20	Function of IgG.	<u>1100</u>
Sat 23.10.21			CL	
Mon 25.10.21 to 7/11/21			classes suspended due to the B.Sc VI sem examination.	
Tues 8/11/21		10.20	Admission counselling	<u>1100</u>
		2-5	Exam Invigilation.	<u>1100</u>
Tue 9/11/21		10.20	Admission counselling	<u>1100</u>
	V sem	12.50	sterilization technique	<u>1100</u>
	III sem	2.30	structure & function IgA	<u>1100</u>
10.11.21 and 11.11.21			CL	
			CL	
Fri 12.11.21			Invigilation duty	<u>1100</u>
Sat 13.11.21	III sem	9.30	B and T lymphocytes	<u>1100</u>
	I sem	12.00	cell theory	<u>1100</u>

*[Signature]*  
 PRINCIPAL  
 L.V.D. College, RAICHUR

Day/date	class	Time	Topic covered	sign	Day/date	class
	V sem	10.20	Given syllabus - SEC - 1	<u>HO</u>		III sem
Mon 15.11.21			Preparation for Practical Exams VI sem.	<u>HO</u>	Sat 20.11.21	III sem
Tue 16.11.21			VI sem Practical Examination	<u>HO</u>		V
Wed 17.11.21			VI sem Practical Examination	<u>HO</u>		B.S F
Thu 18.11.21	I sem	9.30	Cell as a basic unit of life	<u>HO</u>	Tue 23.11.21	V sem
	V sem	12.50	Filter sterilization	<u>HO</u>		III sem
	10.20 III sem	(Practical)	Preparation of media and review of cultures	<u>HO</u>	Wed 24.11.21	I
	V sem Prac.	2.30	Arrangement of chemicals and reagents	<u>HO</u>		III Prac
Fri 19.11.21	V sem	10.20	Sec-1 Principle of forensic science	<u>HO</u>		V sem
	I sem	2.30	Plasma membrane structure.	<u>HO</u>	Thurs 25.11.21	I sem
						III sem

Day	Date	Class	Time	Topic covered	Sign
		III Sem	3:20	Structure and function of IgM, IgE, IgD.	<u>1100</u>
Sat	20.11.21	III Sem	9:30	Cellular Immune response	<u>1100</u>
		V	10:20	Introduction and scope of Forensic science	<u>1100</u>
		B.Sc I Prac.	12:00	Study of compound microscope	<u>1100</u>
	22.11.21			Kanakadas Jayanthi	—
Tue	23.11.21	V Sem	12:50	Preparation of stock solution and MS media	<u>1100</u>
		III Sem	3:20	Humoral immune response.	<u>1100</u>
Wed	24.11.21	I	9:30 AM	Functions of plasma membrane.	<u>1100</u>
		III Prac.	10:20 AM	Preparation of Nutrient media	<u>1100</u>
		V	12:50	Growth regulators	<u>1100</u>
		V Sem	2:30 PM	Preparation of MS media stock	<u>1100</u>
Thue	25.11.21	I Sem	9:30	Structure of Endoplasmic reticulum.	<u>1100</u>
		III Sem Prac	10:20	Motility in bacteria	<u>1100</u> 3.

Day/date	Class	Time	Topic covered	Sign	Day/date	Class
	V sem	12.50	Method of tissue culture	<u>100</u>	Thu 2.12.21	I
	V sem	2.30	Preparation of MS media	<u>100</u>		III Prac
Fri 26.11.21	III sem	9.30	B-memory cells, Plasma cells	<u>100</u>		V Prac
	10.20 V sem Prac	Sec-1	service loop	<u>100</u>	Fri 3.12.21	III
	I sem	12.00 Prac	RBC counting by Haemo cytometer	<u>100</u>		V Prac
	I sem	2.30	Function of Endo Reticulum	<u>100</u>		I sem Prac
Sat 27.11.21	III sem	9.30	T-memory cells, Plasma cells	<u>100</u>	Sat 4.12.21	III
	10.20 V sem Prac	Sec-1	Techniques in forensic science	<u>100</u>		V Prac
29.11.21			CL			I sem Prac
30.11.21			CL			I sem Prac
Wed 1.12.21	I sem	9.30	Structure of Golgi Complex	<u>100</u>	Mon 6/12/21	I Prac
	III sem Prac	10.20 AM	Gram's staining Technique	<u>100</u>		V III
	V	12.50	Inoculation of MS media	<u>100</u>		I
	V sem Prac	2.30 PM	Inoculation of Explant	<u>100</u>	Tue 7/12/21	I Prac



Dec 2021



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Date \_\_\_\_\_

Day/date	Class	Time	Topic covered	Sign
Thu 2.12.21	I	9.30	Functions of Golgi complex.	<u>HO</u>
	III Prac.	10.20 AM	Isolation of bacteria from soil.	<u>HO</u>
	V	12.50 PM	Callus induction subculture	<u>HO</u>
	N Practical	2.30 PM	sterilization of glass wares	<u>HO</u>
Fri 3.12.21	III	9.30 AM	clonal selection theory	<u>HO</u>
	V Prac	10.20 to 12.00	Laboratory organization in forensic science lab.	<u>HO</u>
	I Sem Prac	2.30 PM	Study of Mitosis from squash	<u>HO</u>
Sat 4.12.21	III	9.30 AM	Allotypes, isotypes antibody diversity.	<u>HO</u>
	V Prac	10.20 12.00	Introduction to Vermiculture.	<u>HO</u>
	I Sem Prac	2.30 PM	Observation of stages of mitosis.	<u>HO</u>
Mon 6/12/21	I Prac	10.20 AM	Study of meiosis by chart.	<u>HO</u>
	V	12.50 PM	Regeneration of plants.	<u>HO</u>
	III	2.30 PM	MHC class I & MHC class II.	<u>HO</u>
Tue 7/12/21	I Prac.	10.20 AM	Study of Meiosis by observing slides.	<u>HO</u>

Day/date	Class	Time	Topic covered	Sign.	Day/date	Class
	V	12.50 PM	Suspension culture - Types	<u>1000</u>		V Prac
	III	2.30 PM	Antigen processing	<u>1000</u>		I com
Wed 8.12.21	I	9.30 AM	structure of mitochondria	<u>1000</u>	Mon 13.12.21	I Prac
	III Prac	10.20	Total WBC counting	<u>1000</u>		V
	V	12.50 PM	Synchronization of culture	<u>1000</u>		III
	IV	2.30 PM	Immunity to infection	<u>1000</u>	Tue 14.12.21	
Thur 9.12.21	I	9.30	Functions of mitochondria	<u>1000</u>		I Prac
	III Prac	10.20	WBC counting [Repeat]	<u>1000</u>	Wed 15.12.21	III Prac
	V	12.50 PM	Meristem culture & uses	<u>1000</u>		V
	V	2.30 PM	Sterilization of media	<u>1000</u>	Thur 16.12.21	I
Fri 10.12.21	III	9.30	Autoimmune diseases	<u>1000</u>		III Prac
	V Prac	10.20 AM	Collection and handling of toxicological samples	<u>1000</u>		V
	I	2.30	Structure of chloroplast	<u>1000</u>		IV
Sat 11.12.21	III	9.30	AIDS, Vaccines and Vaccination.	<u>1000</u>	Fri 17.12.21	

Sign	Day/Date	Class	Time	Topic covered	Sign
<u>100</u>		V Prac	10:20 AM	Definition & scope of Vermiculture.	<u>100</u>
<u>100</u>		I sem	2:30 PM	functions of chloroplasts	<u>100</u>
<u>100</u>	Mon 13.12.21	I Prac	10:20 AM	Karyotype - Normal male.	<u>100</u>
<u>100</u>		V	12:50	Introduction to animal tissue culture	<u>100</u>
<u>100</u>		III	2:30 PM	DNA Vaccines, bacterial Vaccine, Viral Vaccine	<u>100</u>
<u>100</u>	Tue 14.12.21		1:00	CA Exam Invigilation	<u>100</u>
<u>100</u>		I Prac	10:20 AM	Karyotype normal female	<u>100</u>
<u>100</u>	wed 15.12.21	III Prac	10:20 AM	Isolation of microorganism from water, Air.	<u>100</u>
<u>100</u>		V	1:00	CA Exam Invigilation	<u>100</u>
<u>100</u>	Thu 16.12.21	I	9:30	structure of lysosomes.	<u>100</u>
<u>100</u>		III Prac	10:20	Observation of results.	<u>100</u>
<u>100</u>		V	12:50	Gene transfer method in Animals.	<u>100</u>
<u>100</u>		V	2:30 PM	Isolation of cells from Chicken liver.	<u>100</u>
<u>100</u>	Fri 17.12.21			CL	<u>100</u>

Day/date	class	Time	Topic covered	Sign	Day/date	class
Sat 18.12.21	9-30	III	Active & passive Immunization.	<u>100</u>		V
	10:20 Prac.	V	sem study of earthworm specimen	<u>100</u>		V Prac.
Mon 20.12.21	I Prac.	10:20 AM	Karyotype - Down's syndrome	<u>100</u>	Fri 24.12.21	
	IV	12:50	stem cell Technology	<u>100</u>	Sat 25.12.21	
	III	2:30 PM	Immunodiagnosics RIA, ELISA.	<u>100</u>	Mon 27.12.21	Prac.
Tue 21.12.21	I Prac.	10:20 AM	Karyotype - Turner's syndrome	<u>100</u>		IV
	V	12:50 PM	Application stem cell Technology.	<u>100</u>		III
	III	2:30 PM	Antigen Antibody Interactions.	<u>100</u>	Tue 28.12.21	Prac.
Wed 22.12.21	I	9:30 AM	Functions of lysosomes.	<u>100</u>		IV
	III Prac.	10:20 AM	Total cell count by Haemocytometer.	<u>100</u>		III
	V	12:50 PM	Genetic engineering in animals	<u>100</u>	Wed 29.12.21	I
	V Prac.	2:30 PM	Isolation of DNA from plant cell.	<u>100</u>		III Prac.
Thur 23.12.21	I	9:30 AM	Introduction to genetics	<u>100</u>		V
	III Prac.	10:20 AM	Endospore staining	<u>100</u>		2:30 Prac.

Sgm	Day/Date	Class	Time	Topic Covered	Sign
		V	12.50 PM	Growth factors EGF, FGF, PDGF, IL-1, 2.	<u>100</u>
		V Prac.	2.30 PM	Preparation of simple growth medium	<u>100</u>
	Fri 24.12.21			CL	
	Sat 25.12.21			Christmas Holiday	
	Mon 27.12.21	I Prac.	10.20	Genetic problems of monohybrid cross	<u>100</u>
		IV	12.50 PM	Clonal propagation in plants	<u>100</u>
		III	2.30 PM	Microbial classification	<u>100</u>
	Tue 28.12.21	I Prac.	10.20 AM	Genetic problems of dihybrid cross	<u>100</u>
		V	12.50 PM	Culture of plant cells - Extraction of sec. metabolites.	<u>100</u>
		III	2.30 PM	Microbial phylogeny & current classification.	<u>100</u>
	Wed 29.12.21	I	9.30 AM	Brief history of genetics	<u>100</u>
		III Prac.	10.20 AM	Capsule staining	<u>100</u>
		V	12.50 PM	Anther culture	<u>100</u>
		2.30 Prac.	V	Preparation of half strength and full strength media	<u>100</u>

Day/Date	Class	Time	Topic covered	Sign	Day/Date	Class
Thu 30.12.21	B.sc I	9.30	Mendelian theory	<u>AS</u>		IV
	III Prac	10.20 PM	Differential WBC count	<u>AS</u>		III
	V	12.50 PM	somoclonal variations sources, selections.	<u>AS</u>	5.01.22 Wed.	I
	V	2.30 PM	Preparation of solid media	<u>AS</u>		III Prac
Fri 31.12.21	B.sc III	9.30	Structure of Bacteria Algae	<u>AS</u>	Thu 4	V
	V Prac	10.20 PM	Collection and handling of microbiology samples.	<u>AS</u>	Fri 6.01.22 to	V
	I sem	2.30	Law of dominance	<u>AS</u>	7.01.22	
Sat 1.01.22	III	9.30	Structure of fungi Protozoa, Viruses	<u>AS</u>	Sat 8.01.22	
	V Prac	10.20 AM	Ecological classification of earthworms.	<u>AS</u>	Mon 10.01.22	
	I	2.30 PM	Law of segregation.	<u>AS</u>	Tue 11.01.22	
					Wed 12.01.22	I
Mon 3.01.22	I Prac	10.20 AM	Genetic problems - of blood grouping.	<u>AS</u>		III Prac
	III	2.30 PM	Nutritional classification of microorganisms.	<u>AS</u>		V
	V	12.50	Somoclonal Variations in crop improvement. CL.	<u>AS</u>		V Prac
Tue 4.01.22	I	10.20 AM			Thu 13.01.22	I

Jan 2022.



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Date \_\_\_\_\_

Day/Date	Class	Time	Topic covered	Sign
	IV	12.50 PM		
	III	2.30 PM		
5.01.21 Wed.	I	9.30	Lang of independent assessment.	<u>100</u>
	III Prac.	10.20 AM	Acid fast staining	<u>100</u>
	V	12.50 PM	Embryo rescue.	<u>100</u>
Thu & Fri 6.01.22.	V	2.30	Protoplast isolation.	<u>100</u>
to 7.01.22.			I - Theory Internal Assessment.	
Sat 8.01.22			Weekend Review.	
Mon 10.01.22			I - Theory Internal.	<u>100</u>
Tue 11.01.22			Internal paper evaluation	<u>100</u>
Wed 12.01.22	I	9.30 AM	Law of codominance	<u>100</u>
	III Practical	10.20 AM	Acid fast staining	<u>100</u>
	V	12.50 PM	History of plant tissue culture	<u>100</u>
	V Practical	2.30	Preparation of liquid media	<u>100</u>
Thu. 13.01.22	I	9.30	Test cross; back cross	<u>100</u>

Day/Date	Class	Time	Topic Covered	Sign	Day/Date	Class
	III Practical	10:20	Enumeration - viable count of nos	<u>MSD</u>		V
	V	12:50 PM	Protoplast isolation and regeneration	<u>MSD</u>		B VII Sem
	V	2:30 PM	Preparation of MS media stock	<u>MSD</u>	Thu 20.1.22	III Prac
Fri 14.1.22	V Prac	10:20 AM	Collection and handling of murder case samples	<u>MSD</u>		V
	III	9:30 AM	Purification & preservation of cultures.			III V
	V	2:30 PM	Collection and Handling of firing crime scene samples	<u>MSD</u>	Fri. 21.1.22	V SEC
Sat 15.1.22	<u>Makara Sankranti</u>					V SEC Prac
Mon 17.1.22	I Practical	10:20 AM	Genetic problems of blood grouping.	<u>MSD</u>		I Sem III
	V	12:50 AM	SEC - 1 Theory Internal	<u>MSD</u>	Sat 22.1.22	V
	III	2:30 PM	Types of microbial cultures its growth kinetics	<u>MSD</u>		V Prac III
Tue. 18.1.22	I Practical	10:20 AM	Genetic problems of blood grouping	<u>MSD</u>		I
	V	12:50 PM	Protoplast fusion	<u>MSD</u>	Mon 24.1.22	I Prac
	VI	2:30	Batch, fed batch & Continuous culture	<u>MSD</u>		V
Wed 19.1.22	III Practical	10:20 AM	Methods of isolation of bacteria from soil.	<u>MSD</u>		III



Sign	Day/Date	Class	Time	Topic covered	Sign
<u>    </u>		V Sem	12.50 PM	Genetic engineering in plants	<u>    </u>
<u>    </u>		V Sem	2.30 PM	Preparation of MS media from stock	<u>    </u>
<u>    </u>	Thu 20-1-22	Practical III	10.20 AM	Isolation of bacteria from air & water	<u>    </u>
<u>    </u>		V	12.50 PM	Use of agrobacterium in gene transfer	<u>    </u>
<u>    </u>		V	2.30 PM	Surface sterilization of plant material	<u>    </u>
<u>    </u>	Fri. 21-1-22	SEC	10.20	General and individual characteristics of Handwriting	<u>    </u>
<u>    </u>		SEC Practical	12.00 PM	classification of injuries	<u>    </u>
<u>    </u>		I Sem	2.30	Terms of Mendelian genetics	<u>    </u>
<u>    </u>		III	9.30	Control of microorganism	<u>    </u>
<u>    </u>	Sat 22-1-22	V	10.20 AM	Principles of forensic science	<u>    </u>
<u>    </u>		Practical V	12.00	study of vermicomposting	<u>    </u>
<u>    </u>		III	9.30	Bacterial pollutants of water	<u>    </u>
<u>    </u>		I	2.30	Plasid inheritance	<u>    </u>
<u>    </u>	Mon 24-1-22	Practical I	10.20	calibration of stage micrometer and Ocular micrometer	<u>    </u>
<u>    </u>		V	12.50	Direct transfer method in plants	<u>    </u>
<u>    </u>		III	2.30 PM	Microorganism in food mould yeast & bacteria	<u>    </u>

PRINCIPAL  
V.D. College, RAICHUR-03

Day/Date	Class	Time	Topic covered	Sign	Day/Date	Class
Tue 25/01/22	I Sem Practical	10:20 AM	Calibration of stage and ocular micrometer	<u>100</u>		V Prac
	V	12:50 PM	Mechanism of N <sub>2</sub> fixation	<u>100</u>		I III
	III	2:30 PM	Purification & characterization of proteins	<u>100</u>	Sun 30-1-22	
Wed 26/01/22	Republic Day				Mon 31-1-22	I Prac
	III Practical	10:20 AM				V
	I	9:30				
	V	12:50 PM	Animal diseases & use of Biotechnology	<u>100</u>		III
	V Practical	2:30 PM	Inoculation of plant material	<u>100</u>	Thu 1-02-22	I Prac
Thu 27/01/22	III Practical	10:20 AM	Motility by hanging drop method	<u>100</u>		V
	V	12:50 PM	Foot & mouth disease Coccidiosis. Trypanosomiasis	<u>100</u>		III s
	V Practical	2:30 PM	Preparation of Hanks balanced salt solution	<u>100</u>	Wed 2-02-22	II Prac
	I	9:30 AM	Gene interaction Indrovidium	<u>100</u>		V
Fri 28/01/22	V	10:20 AM	Types of earthworms	<u>100</u>		V
	V Practical	12:00 PM	Explained finger printing using video class	<u>100</u>	Thu 3/02/22	III Prac
	I	2:30	Complementary genes	<u>100</u>		V
Sat 29-01-22	V	10:20 AM	Modus operandi in forensic science			V

Feb 2022

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Date: \_\_\_\_\_

Sign	Day/Date	Class	Time	Topic covered	Sign
<u>100</u>		V Practical	12.00	Role of toxicologist in forensic science	<u>100</u>
<u>100</u>		I	2.30 PM	Examples of complementary genes	<u>100</u>
<u>100</u>	Sun 30-1-22	III	9.30	upstream, downstream process	<u>100</u>
			NAAC	orientation programme.	
	Mon 31.1.22	I Practical	10.20 AM	Measurement of size of onion epidermal cell	<u>100</u>
		V	12.50 PM	Hybridoma technology & HAT selection	<u>100</u>
<u>100</u>		III	2.30 PM	Fermented food - lactic acid production	<u>100</u>
<u>100</u>	Tue 1.02.22	I Practical	10.20 AM	Measurement of size of yeast cell.	<u>100</u>
<u>100</u>		V	12.50 PM	Genetic engineering in animals	<u>100</u>
<u>100</u>		III sem	2.30 PM	Ethanol production	<u>100</u>
<u>100</u>	Wed 2.02.22	III Practical	10.20 AM	Estimation of lactic acid	<u>100</u>
<u>100</u>		V	12.50 AM	Artificial insemination Animal clones, IVF & ET	<u>100</u>
<u>100</u>		V	2.30 PM	Preparation of minimum essential media	<u>100</u>
<u>100</u>	Thu. 3/02/22	III Practical	10.20 AM	Isolation of chromosomal DNA from bacteria.	<u>100</u>
<u>100</u>		V	12.50 PM	Gene therapy its types	<u>100</u>
<u>100</u>		V	2.30 PM	Isolation of DNA from animal tissue	<u>100</u>

Day/date	class	Time	Topic covered		Day/date	class
Fri 4/02/22	V Asem	10.20 AM	Bio resources of Vermicomposting	<u>100</u>	Thu 17/02/22	I Sem
	V Sem	12. PM <i>Practical</i>	Applications of DNA fingerprinting	<u>100</u>	Fri 18/02/22	I Sem
	2.30 ISem	2.30 PM	Supplementary genes	<u>100</u>		V
Sat 5/02/22	V	10.20 AM	Earthworm activity on soil fertility	<u>100</u>	Sat 19/02/22	V
	V	12. PM <i>Practical</i>	Endemic & exotic species of earthworms	<u>100</u>		V
	I.	2-30 PM	Epistatic interaction	<u>100</u>		I
Mon 7/02/22			<i>Second Internals</i>		Mon 21/02/22	I Prac
& 8/02/22			<i>Second Internals</i>			V
Wed 9/02/22			<i>Second Internals</i>			III
to 12/02/22			Holiday to students due to strike	<u>100</u>		III
12/02/22	Bsc I	2.30 Online & presents Girls	Sex linked inheritance	<u>100</u>	Thu 22/02/22	I Prac
Mon 14/02/22			Question paper setting	<u>100</u>		V
Tue 15/02/22			Question paper setting	<u>100</u>		III
Wed 16/02/22	I Sem	10.20 AM online of present Girls	Chromosome theory of inheritance	<u>100</u>	23/02/22 & 24/02/22	I Prac
					Fri 25/02/22	I

Day/Date	class	Time	Topic covered	Sign
Thu 17/02/22	I Sem	10-20 <i>Practical</i>	Study of Chromosomes larvae.	<u>100</u>
Fri 18/02/22	I Sem.	2:30	Multiple factors - skin colour in human beings.	<u>100</u>
	IV	10:20 AM	Collection and Handling of Hit and own crime scene.	<u>100</u>
Sat 19/02/22	V	10:20 AM	Earthworm distribution.	<u>100</u>
	V	12:PM <i>Prac</i>	Economic importance of Vermicompost.	<u>100</u>
	I	2:30 AM	Multiple allelism.	<u>100</u>
Mon 21/02/22	I <i>Practical</i>	10:20 AM	Demonstrate slide preparation of Salivary gland chromosome.	<u>100</u>
	V	12:50 PM	Transgenic animals in milk production	<u>100</u>
	III	2:30 PM	Seminar conducted	<u>100</u>
Tue 22/02/22	I <i>Practical</i>	10:20 AM	RBC counting - Repealation	<u>100</u>
	V	12:50 PM	Transgenic animals in meat production.	<u>100</u>
	III	2:30 PM.	Seminar conducted.	<u>100</u>
23/02/22 & 24/02/22			CL PRINCIPAL L.V.D.College, RAICHUR-50.	
Fri 25/02/22	V	10:20	Physical, chemical & biological	<u>100</u>

Day/date	class	Time	Topic covered	Sig.	Day/date	Cl
	V sem	12.00	Changes occurred by <i>Practical</i> evolutionism.	<u>NO</u>	Mon 7/3/22	
	I sem	2.30 PM	Crossing over.	<u>NO</u>	Tue 8/3/22	
	25/02/22 - last working day for III & V					
Sat 26/02/22	V sem	10.20	Record correction.	<u>NO</u>	Wed 9/3/22	
	I sem	2.30 PM	Introduction to linkage.	<u>NO</u>		
Mon 28/02/22	I sem	10.20 AM <i>Practical</i>	Coupling & repulsion hypothesis.	<u>NO</u>	Thu 10/3/22	
	V sem	12.50 PM	Record correction	<u>NO</u>		
Tue 1/03/22	III sem	2.30	Seminar conducted	<u>NO</u>	Fri 11/3/22	
	<u>Mahashivratri</u>					
Wed 2/3/22	I sem	9.30 AM	Linkage in maize.	<u>NO</u>	Sat 12/3/22	
		2.30 PM	Programme arranged for women's day celebration.	<u>NO</u>		
Thu 3/03/22	I sem	9.30 AM	Linkage in Drosophila	<u>NO</u>		12 M B.S
		2.30 PM	Preparation for women's day celebration	<u>NO</u>		
Fri 4/03/22	I sem	12.00 PM	Seminars conducted	<u>NO</u>		
Sat 5/03/22	I sem	12.00 PM	Seminar conducted	<u>NO</u>		

March 2022

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	Date _____

Sign	Day/Date	Class	Time	Topic Covered	Sign
<u>1100</u>	Mon 7/3/22			Raichur Bandh.	
<u>1100</u>	Tue 8/3/22			women's day celebrations	<u>1100</u>
<u>1100</u>	Wed 9/3/22			Freshers party for B.Sc I sem	
<u>1100</u>	Thu 10/3/22			Seminars conducted by B.Sc I sem	<u>1100</u>
<u>1100</u>	Fri 11/3/22			Seminars conducted	<u>1100</u>
<u>1100</u>	Sat 12/3/2021			Record collection	<u>1100</u>
<u>1100</u>	14/3/22			Preparation of practical Exams & Practical exams and holidays for students.	

12 March last working day for  
B.Sc I sem.

1100  
H.O.D. -  
Dept. of Biotechnology  
L.V.D. College, RAICHUR.

1100  
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