

**NAGARJUNA GOVERNMENT COLLEGE,  
(AUTONOMOUS)  
NALGONDA**



**SYLLABUS  
CHOICE BASED CREDIT SYSTEM  
SEMESTER PATTERN  
B.Sc. Microbiology  
(Students admitted from 2017-2018 onwards)**

**NAGARJUNA GOVERNMENT DEGREE COLLEGE, NALGONDA**  
**(Autonomous),**  
**Reaccredited by NAAC with "A" GRADE**  
**DEPARTMENT OF MICROBIOLOGY**  
**BOARD OF STUDIES MEETING -2017-18**

The Board of Studies in the Department of Microbiology has been constituted with the following members for the Academic year **2017-2018**

S.No.	Composition of B.O.S	Name and Designation
1.	Chairman ,Board of studies	<b>Sri.B. Nagaraju</b> Head&Asst. Prof. Dept.of microbiology Nagarjuna Government College Nalgonda.
2.	University Nominee,Nominated By Vice-Chancellor	<b>.Dr.B.Bima,</b> Chairman ,Board of studies Department of microbiology Osmania university Hyderabad.
3.	Subject Experts- from outside the College nominated by Principal	<b>1 prof. .P. Acharya Nagarjun</b> Head Department of Microbiology Osmania university Hyderabad <b>2.Dr.P.Pallavi,Asst.Prof.</b> Department of Microbiology GDC(W),Nalgonda.
4.	Members: All the faculty members of the Department	Kum.B.Rupa, Guest faculty in Microbiology N.G.College,Nalgonda.

*Principal*  
**Nagarjuna Govt. College**  
**(Autonomous) NALGONDA.**

*Sri.B. Nagaraju*  
**CHAIRMAN**  
**Board of Studies**  
**Dept. of Microbiology**  
**Nagarjuna Government College (**  
**Nalgonda (TS) - 508 001**

*Dr.B.Bima*  
**Chairman,BoS**  
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**Osmania University,H**

*P. Acharya*  
**Head**  
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**Hyderabad, 500 007.**

*P. Pallavi*  
**Dr. P. PALLAVI**  
**M.Sc.,Ph.D**  
**Assistant Professor**  
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**DEPARTMENT OF MICROBIOLOGY**  
**BOARD OF STUDIES MEETING -2017**

The Board of Studies Meeting of Microbiology department is being held Today i.e On .10.2017 in the Department of Microbiology under the Chairmanship of Sri . B . Nagaraju, Head ,Department Of Microbiology to discuss the following Agenda and to formulate certain Resolutions.

**Agenda:**

1. To continue **CBCS**(Choice based credit system),introduced during the academic year 2014 -15.
2. To approve the syllabus of B.Sc. I,II,and III year( all papers) .
3. To approve to conduct two (2) internal assessments for 30 marks twice in a semester,each in the form of (20 marks for written examination,5 marks for assignment and 5 marks for student seminar )for the students admitted during 2017-18 & after.
4. To continue the **Pass Percentage as (40%)** for **CBCS** students.
5. To approve the **Model Question Papers** for **CBCS I, II, III, IV,V and VI Semesters .**
6. To approve the Semester End Examinations - **70 marks for I,II,III Year students (CBCS)** and to conduct **Practical examinations at the end of the year for 50 marks(III Yr)**
7. To approve the semester end practical examinations for 50 marks to I & II students i.e. II yr students admitted in 2016-17 & I students admitted in 2017-18 & after.
8. To approve to continue **Diagnostic Microbiology, Certificate Course**(3 months duration)
9. To approve the list of **Paper Setters and Examiners** for evaluation of papers.
10. To approve the skill enhancement course(SEC- I) i.e **Medical Diagnostics** for III Semester & **SEC II** for IV Semester will be adapted according to University Guidelines(MGU).

11.To approve the examination pattern for SEC -I.

**Members :**

1. **Sri B. Nagaraju,**  
Chairman , Board of Studies,  
Department Of Microbiology,  
N.G College , Nalgonda.

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CHAIRMAN  
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2. **Dr. B.Bhima**  
**Asoc.Prof &**  
Chairman,Board of Studies,  
Department of Microbiology,  
OU,Hyderabad.

*B. Bhima*  
Dr. B. Bhima  
Chairman, BoS  
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Osmania University, Hyd.

3. **Prof .P.Acharya Nagarjun**  
**HEAD,**  
Dept. Of Microbiology ,  
O.U , Hyderabad.

*P. Acharya Nagarjun*  
Head  
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4. **Dr.P.Pallavi,**  
Assistant Prof.  
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5. kum.B.Rupa, Guest Faculty, N.g college , Nalgonda

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**BOARD OF STUDIES MEETING -2017**

The Board of Studies Meeting of Microbiology department is being held Today i.e on .10.2017 in the Department of Microbiology under the Chairmanship of Sri . B . Nagaraju, Head Department Of Microbiology to discuss the Agenda and to formulated the following Resolutions.

1. Approved to continue **CBCS(Choice based credit system)**,introduced during the academic year 2014 -15.
2. Approved the **syllabus of B.Sc. I,II,and III year( All papers) .**
3. Approved to conduct two (2)**internal assessments for 30 marks** twice in a semester,each in the form of (20 marks for written examination,5 marks for assignment and 5 marks for student seminar)for the students admitted during 2016-17 & after.
4. Approved the **Pass Percentage for CBCS (40%)**
5. Approved the **Model Question Papers** for cbc s I, II, III, IV, V and VI Semesters ,
6. Approved the Semester-End Examinations - **70 marks for (CBCS)**,and to conduct **practical examinations at the end of the year for 50 marks**(for III Yr)
7. Approved the Semester- End Practical Exams for I Year students admitted in 2017-18 and II Yr students admitted in 2016-17.
8. Approved to continue **Diagnostic microbiology, Certificate Course**(4 months duration)
9. Approved the list of **Paper Setters and Examiners** for evaluation of papers.
10. Approved the skill enhancement course(**SEC- I**) i.e Medical Diagnostics for III Semester

## B.Sc. Microbiology I Year Syllabus

(Applicable to the students admitted in 2017-18&After)

I Year B.Sc. (Microbiology)CBCS

SEMESTER-I

Paper I: INTRODUCTORY MICROBIOLOGY-I

### UNIT – I: HISTROY OF MICROBIOLOGY

Meaning, definition and history of Microbiology. 2 Hrs

Contributions of Antony von Leeuwenhoek, Edward Jenner, Louis Pasteur, Robert Koch, Iwanowsky, Beijerinck, Winogradsky and Alexander Fleming. 10 Hrs

Importance and applications of Microbiology. 2 Hrs

### UNIT –II: MICROSCOPY

Principles of microscopy – . Principles of Bright field, dark field, phase-contrast, fluorescent and electron microscopy (SEM and TEM). Ocular and stage micrometers. 10 Hrs

Size determination of microorganisms. 2 Hrs

Principles and types of stains - Simple stain, differential stain, negative stain, structural stains - spore, capsule, flagella. Hanging-drop method. 4 Hrs

### UNIT – III : MICROBIOLOGICAL TECHNIQUES

sterilization. 2 Hrs

Physical methods - autoclave, hot-air oven, pressure cooker, laminar air flow, filter sterilization. 5 Hrs

Radiation methods - UV rays, gamma rays, ultrasonic methods. 4 Hrs

Chemical methods - Use of alcohols, aldehydes, fumigants, phenols, halogens and hypochlorites. Phenol coefficient. 5 Hrs

### UNIT-IV: PURE CULTURE TECHNIQUES

Isolation of pure culture techniques - Enrichment culturing, dilution-plating, streak-plate, spread-plate and micromanipulator. 8 Hrs

Preservation of microbial cultures - subculturing, overlaying cultures with mineral oils, lyophilization, sand cultures, storage at low temperature. 6 Hrs

### References:

1. Michael J. Pelczar, Jr. E.C.S.Chan, Noel R. Krieg Microbiology Tata McGraw- Hill Publisher.
2. Prescott, M.J., Harley, J.P. and Klein Microbiology 5th Edition, WCB Mc GrawHill New York.
3. Madigan, M.T., Martinkl, J.M and Parker, j. Broch Biology of Microorganism, 9th Edition, MacMillan Press, England.
4. Dube, R.C. and Maheshwari, D.K. General Microbiology S Chand, New Delhi.

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## LAB - I: (B.Sc. I Yr) INTRODUCTORY MICROBIOLOGY (Practicals) 45 Hrs


1. Precautions to work in Microbiology laboratory.
2. Preparation of culture media: Solid / Liquid.
3. Sterilization techniques: Autoclaving, hot-air oven and filtration.
4. Isolation of single colonies on solid media.
5. Enumeration of bacterial numbers by serial dilution and plating.
6. Light compound microscope and its handling.
7. Microscopic observation of bacteria(slides): (Gram +ve bacilli and cocci, Gram -ve bacilli), cyanobacteria (*Nostoc*, *Spirulina*), algae (*Scenedesmus* sp., diatoms), and fungi (*Saccharomyces*, *Rhizopus*, *Aspergillus*, *Penicillium*, *Fusarium*).

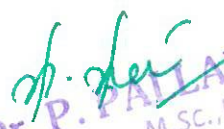
### REFERENCE BOOKS for LAB:

1. Experiments in Microbiology by K.R. Aneja.
2. Gopal Reddy.M., Reddy. M.N., Sai Gopal, DVR and Mallaiah K.V. Laboratory Experiments in Microbiology.
3. Dubey, R.C. and Maheshwari, D.K. Practical Microbiology, S. Chand and Co New Delhi.
4. Alcamo, I.E. Laboratory Fundamentals of Microbiology. Jones and Bartlett Publishers, USA.

  
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**B.Sc. Microbiology I Year Syllabus**  
(Applicable to the students admitted in 2017-18)  
**I Year B.Sc. (Microbiology)**  
**SEMISTER-II**  
**Paper II: INTRODUCTORY MICROBIOLOGY-II**

**UNIT – I : BIOLOGY OF MICROORGANISMS**

Outline classification of living organisms: Heckel, Whittaker and Carl Woese systems. 6 Hrs

Place of microorganisms in the living world. 2 Hrs

Differentiation of prokaryotes and eukaryotes. 1 Hr

Prokaryotes - General characteristics of bacteria, archaea, rickettsias, mycoplasmas, cyanobacteria and actinomycetes. 6 Hrs

Outline classification for bacteria as per the second edition of Bergey's Manual of Systematic Bacteriology (up to section level). 2 Hrs

**UNIT-II: STRUCTURE OF MICROORGANISMS**

Ultrastructure of a bacterial cell: Invariant components - cell wall, cell membrane, ribosomes, nucleoid. Variant components - Capsule, flagella, fimbriae, endospore and storage granules. 6 Hrs

General characteristics and classification of viruses. Morphology and structure of TMV and HIV. 2 Hrs

Structure and multiplication of lambda bacteriophage. 2 Hrs

Eukaryotes - General characteristics and classification (up to the order level) of eukaryotic microorganisms - Protozoa, microalgae, molds and yeasts. 3 Hrs

**UNIT – III: GENERAL CHARACTERISTICS OF BIOMOLECULES**

Biomolecules of microorganisms. 1 Hr

Outline classification and general characteristics of carbohydrates (monosaccharides, disaccharides and polysaccharides). 5 Hrs

General characteristics of amino acids and proteins. 5 Hrs

Structure of nitrogenous bases, nucleotides, nucleic acids. 5 Hrs

**UNIT IV :BIOMOLECULES AND TECHNIQUES**


Fatty acids (saturated and unsaturated) and lipids (spingolipds, sterols and phospholipids). 5 Hrs


Hydrogen ion concentration in biological fluids, pH measurement. 3 Hrs

Types of buffers and their use in biological reactions. 3 Hrs

Principle and application of colorimetry and chromatography (paper and thin-layer).

  
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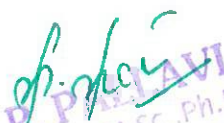
## References:

1. Michael J. Pelczar, Jr. E.C.S.Chan, Noel R. Krieg Microbiology Tata McGraw- Hill Publisher.
2. Prescott, M.J., Harley, J.P. and Klein Microbiology 5th Edition, WCB Mc GrawHill, New York.
3. Madigan, M.T., Martinkl, J.M and Parker, j. Broch Biology of Microorganism, 9th Edition, MacMillan Press, England.
4. Dube, R.C. and Maheshwari, D.K. General Microbiology S Chand, New Delhi.
5. Voet, D Biochemistry WCB. Mc GrawHill, Iowa.
6. N.J. Dimmock, A.J Easton, and K.N. Leppard. Introduction to Modern Virology. Blackwell Publishing.

  
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## LAB –II: (B.Sc. I Yr) INTRODUCTORY MICROBIOLOGY (Practicals) 45 Hrs


1. Calibrations of microscopic measurements (Ocular, stage micrometers).
2. Measuring dimensions of fungal spores
3. Simple and differential staining (Gram staining).
4. Spore staining, capsule staining and negative staining.
5. Diagrammatic or Electron photomicrographic observation of TMV, HIV, T4 phage and adenovirus
6. Qualitative tests for sugars and Amino Acids.
7. Qualitative test and estimation of Glucose.

### REFERENCE BOOKS FOR LAB:

1. Experiments in Microbiology by K.R. Aneja.
2. Gopal Reddy.M., Reddy. M.N., Sai Gopal, DVR and Mallaiah K.V. Laboratory Experiments in Microbiology.
3. Dubey, R.C. and Maheshwari, D.K. Practical Microbiology, S. Chand and Co New Delhi.
4. Alcamo, I.E. Laboratory Fundamentals of Microbiology. Jones and Bartlett Publishers, USA.
5. Mahy, B.W.J. and Kangro, H.O. Virology – Methods Manual Academic Press, USA.
6. Burlison et al Virology – A Laboratory Manual. Academic Press, USA.

  
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**B.Sc. Microbiology II Year Syllabus**  
(Applicable to the students admitted in 2016-17)

**SEMESTER-III**

**Paper III: MICROBIAL PHYSIOLOGY (Theory)**

**UNIT - I MICROBIAL NUTRITION**

Microbial nutrition - nutritional requirements and uptake of nutrients by cells.  
Nutritional groups of microorganisms - autotrophs, heterotrophs, mixotrophs, methylotrophs. 5 Hrs  
Growth media - synthetic, nonsynthetic, selective, enrichment and differential media.

**UNIT-II MICROBIAL GROWTH**

Microbial growth - different phases of growth in batch cultures. 6 Hrs  
Factors influencing microbial growth. 2 Hrs  
Synchronous, continuous, biphasic growth. 3 Hrs  
Methods for measuring microbial growth – Direct microscopy, viable count estimates, turbidometry, biomass. 4 Hrs

**UNIT-III - & -ENZYMES**

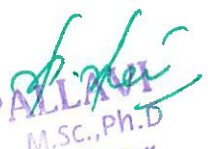
Enzymes - properties and classification, enzyme unit. 3 Hrs  
Biocatalysis - induced fit, and lock and key model, coenzymes, cofactors, factors affecting catalytic activity of enzymes. 4 Hrs  
Inhibition of enzyme activity - competitive, noncompetitive, uncompetitive and allosteric. 3 Hrs

**UNIT - IV MICROBIAL METBOLISM AND PHOTOSYNTHESIS**

Aerobic respiration - Glycolysis, HMP pathway, ED pathway, TCA cycle, electron transport, oxidative and substrate-level phosphorylation. Anaplerotic reactions.  $\beta$ -Oxidation of fatty acids. Glyoxylate cycle. 13 Hrs  
Anaerobic respiration (nitrate, sulphate respiration). 7 Hrs  
Fermentation - Common microbial fermentations with special reference to alcohol and lactic acid fermentations. 5 Hrs  
Photosynthetic apparatus in prokaryotes. Outlines of oxygenic and anoxygenic photosynthesis in bacteria. 5 Hrs

  
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## References:

1. Gottschalk, G. (1986). Bacterial Metabolism, Springer-Verlag, New-York.
2. Caldwell, D.R. (1995). Microbial Physiology and Metabolism, W.C. Brown Publications, Iowa, USA.
3. Moat, A.G. and Foster, J.W. (1995). Microbial Physiology, John-Wiley, New York.
4. White, D. (1995). The Physiology and Biochemistry of Prokaryotes, Oxford University Press, New York.
5. Reddy, S.R. and Reddy, S.M. (2004). Microbial Physiology, Scientific Publishers, Jodhpur, India.
6. Lehninger, A.L., Nelson, D.L. and Cox, M.M. (1993). Principles of Biochemistry, 2nd Edition, CBS Publishers and Distributors, New Delhi.
7. Elliot, W.H. and Elliot, D.C. (2001). Biochemistry and Molecular Biology, 2nd Edition, Oxford University Press, U.S.A.

  
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### LAB – III: MICROBIAL PHYSIOLOGY (Practicals) 45 Hrs

1. Preparation of media for culturing autotrophic and heterotrophic microorganisms - Algal medium, mineral salts medium, nutrient agar medium, McConkey agar, and blood agar.
2. Enrichment culturing and isolation of phototrophs and chemoautotrophs.
3. Setting and observation of Winogradsky column.
4. Determination of viable count of bacteria.
5. Turbidometric measurement of bacterial growth.
6. Bacterial growth curve.
7. Factors affecting bacterial growth – pH, temperature, salts.


### References:

1. Wilson, K. and Walker, J. (1994). Practical Biochemistry. 4th Edition, Cambridge University Press England.
2. Sawhney, S.K. and Singh, R. (2000). Introductory Practical Biochemistry, Narosa Publishing House, New Delhi.
3. Dubey, R.C. and Maheswari, D.K. (2002). Practical Microbiology. S. Chand & Co. Ltd., New Delhi.
4. Plummer, D.T. (1988). An Introduction to Practical Biochemistry. 3rd Edition, Tata Mc GrawHill New Delhi.
3. Reddy, S.M. and Reddy, S.R. (1998). Microbiology – Practical Manual, 3rd Edition, Sri Padmavathi Publications, Hyderabad.
4. Jaya Babu (2006). Practical Manual on Microbial Metabolisms and General Microbiology. Kalyani Publishers, New Delhi.
7. Sashidhara Rao, B. and Deshpande, V. (2007). Experimental Biochemistry: A student Companion  
I.K. International Pvt. Ltd
8. Gopal Reddy, M., Reddy, M.N., Saigopal, DVR and Mallaiah, K.V. (2007). Laboratory Experiments  
in Microbiology, . Himalaya Publishing House, Mumbai.

  
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**B.Sc. Microbiology II Year Syllabus**  
(Applicable to the students admitted in 2016-17)

**SEMESTER-III**

**Paper III: Medical Diagnostics (SEC-I)**

**2 Credits**

**Unit I:** Introduction to medical diagnostics, Diagnostic methods for analysis of blood and urine

- 1.1 Introduction to medical diagnostics and its importance
- 1.2 Blood composition, Leishman's staining, Platelet count using haemocytometer, Erythrocyte sedimentary Rate (ESR) ,packed cell volume(P.C.V)
- 1.3 Urine analysis Physical characteristics, abnormal constituents.

**Unit II:** Non-infection , Infection diseases & Tumours

- 1.1 Non-infection diseases –causes, types, symptoms, complications, diagnosis and prevention of diabetes (type-I&II), Hypertension (Primary &secondary), testing of blood glucose using glucometer/ kit.
- 1.2 Infectious diseases- causes, types, symptoms complication, diagnosis and prevention of tuberculosis and hepatitis.
- 1.3 Tumours – Types (Benign) Malignant) , detection & metastasis.

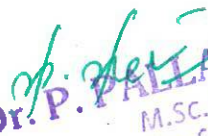
**Suggested Readings:**

1. Prakash, G.(2012). Lab Manual on Blood analysis and Medical Diagnostics. S. Chand and Co. Ltd., New Delhi.

  
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**B.Sc. Microbiology II Year Syllabus**  
(Applicable to the students admitted in 2016-17)  
**II Year B.Sc. (Microbiology)**  
**SEMISTER-IV**

**Paper IV : MICROBIAL GENETICS**

**UNIT – I**

DNA and RNA as genetic materials. 8 Hrs  
Structure of DNA – Watson and Crick model. 2 Hrs  
Extrachromosomal genetic elements – Plasmids and transposons. 2 Hrs  
Replication of DNA – Semiconservative mechanism. 3 Hrs  
Outlines of DNA damage and repair mechanisms. 4 Hrs

**UNIT-II**

Mutations – spontaneous and induced, base pair changes, frame shifts, deletions, inversions, tandem duplications, insertions. 4 Hrs  
Various physical and chemical mutagens. 2 Hrs  
Brief account on horizontal gene transfer among bacteria – transformation, transduction and conjugation. 5 Hrs


**UNIT – III**


Concept of gene – Muton, recon and cistron. One gene-one enzyme, one gene-one polypeptide, one gene-one product hypotheses. 4 Hrs  
Types of RNA and their functions. 2 Hrs  
Outlines of RNA biosynthesis in prokaryotes. 3 Hrs  
Genetic code. Structure of ribosomes and a brief account of protein synthesis. 4 Hrs  
Types of genes – structural, constitutive, regulatory. 2 Hrs  
Operon concept. Regulation of gene expression in bacteria – *lac* operon. 3 Hrs


**UNIT-IV**

Basic principles of genetic engineering - restriction endonucleases, DNA polymerases and ligases, vectors. 3 Hrs  
Outlines of gene cloning methods. 2 Hrs  
Genomic and cDNA libraries. 3 Hrs  
General account on application of genetic engineering in industry, agriculture and medicine. 4 Hrs

  
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## References:

1. Freifelder, D. (1997). Essentials of Molecular Biology. Narosa Publishing House, New Delhi.
2. Crueger, W. and Crueger, A. (2000). Biotechnology: A Text Book of Industrial Microbiology, Prentice-Hall of India Pvt. Ltd., New Delhi.
3. Glick, B.P. and Pasternack, J. (1998). Molecular Biotechnology, ASM Press, Washington D.C., USA.
4. Freifelder, D. (1990). Microbial Genetics. Narosa Publishing House, New Delhi.
5. Strickberger, M.W. (1967). Genetics. Oxford & IBH, New Delhi.
6. Sinnot E.W., L.C. Dunn and T. Dobzhansky. (1958). Principles of Genetics. 5th Edition. McGraw Hill, New York.
7. Glazer, A.N. and Nikaido, H. (1995). Microbial Biotechnology – Fundamentals of Applied Microbiology, W.H. Freeman and company, New York.
8. Old, R.W. and Primrose, S.B. (1994) Principles of Gene Manipulation, Blackwell Science Publication, New York.
9. Verma, P.S. and Agarwal, V.K. (2004). Cell Biology, Genetics, Molecular Biology, Evolution and Ecology. S. Chand & Co. Ltd., New Delhi.

  
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## LAB – IV: MICROBIAL GENETICS (Practicals) 45 Hrs


1. Colorimetric estimation of proteins by Biuret / Lowery method.
2. Colorimetric estimation of DNA by Diphenyl amine method.
3. Colorimetric estimation of RNA by Orcinol method
4. Extraction of genomic DNA
5. Agarose gel Electrophoresis
6. Problems related to DNA and RNA characteristics, Transcription and Translation


### References:

1. Wilson, K. and Walker, J. (1994). Practical Biochemistry. 4th Edition, Cambridge University Press, England.
2. Sawhney, S.K. and Singh, R. (2000). Introductory Practical Biochemistry, Narosa Publishing House, New Delhi.
3. Dubey, R.C. and Maheswari, D.K. (2002). Practical Microbiology. S. Chand & Co. Ltd., New Delhi.
4. Plummer, D.T. (1988). An Introduction to Practical Biochemistry. 3rd Edition, Tata Mc GrawHill, New Delhi.
5. Reddy, S.M. and Reddy, S.R. (1998). Microbiology – Practical Manual, 3rd Edition, Sri Padmavathi Publications, Hyderabad.
6. Jaya Babu (2006). Practical Manual on Microbial Metabolisms and General Microbiology. Kalyani Publishers, New Delhi.
7. Sashidhara Rao, B. and Deshpande, V. (2007). Experimental Biochemistry: A student Companion. I.K. International Pvt. Ltd.
8. Gopal Reddy, M., Reddy, M.N., Saigopal, DVR and Mallaiah, K.V. (2007). Laboratory Experiments in Microbiology, . Himalaya Publishing House, Mumbai.

  
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**III Year B.Sc. (Microbiology)**

**SEMISTER-V**  
**Paper V: IMMUNOLOGY**

**UNIT - I HISTORY OF IMMUNOLOGY AND IMMUNITY**

**Development of immunology. 2 Hrs**

Types of immunity – innate and acquired; active and passive; humoral and cell-mediated immunity. 6 Hrs

Primary and secondary organs of immune system – thymus, bursa fabricus, bone marrow, spleen and lymph nodes. 6 Hrs

Cells of immune system- B and T lymphocytes, null cells, monocytes, macrophages, neutrophils, basophils and eosinophils. 6 Hrs

**UNIT – II**

**22 Hrs**

Antigens – types, chemical nature, antigenic determinants, haptens. 2 Hrs

Factors affecting antigenicity. 1 Hr

Antibodies – basic structure, types, properties and functions of immunoglobulins. 2 Hrs

Components of complement and activation of complement. 2 Hrs

**UNIT-III ANTIGENS AND ANTIBODY REACTION**

Types of antigen-antibody reactions – agglutination, blood groups, precipitation, neutralization, complement fixation. 4 Hrs

Labeled antibody based techniques – ELISA, RIA and Immunofluorescence. 3 Hrs

**UNIT-IV IMMUNOLOGICAL PROCESSES AND APPLICATIONS**


Polyclonal and monoclonal antibodies – production and applications. 3 Hrs

Autoimmunity and its significance. 2 Hrs

  
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## References:

1. Sudha Gangal. Shubhangi Sontakke. Text book of Basic and Clinical Immunology, Universitie Press.
2. Tizard, I.R. (1995). Immunology : An Introduction, WB Saunders, Philadelphia, USA.
3. Riott, I.M. (1998). Essentials of Immunology, ELBS and Black Well Scientific Publishers, England.
4. Goldsby, Kindt, T.J. and Osborne, B.A. (2004). Kuby Immunology, 6th Edition, W.H.Freeman and Company, New York.
5. Lydyard, P.M., Whelan, A. and Fanger, M.W. (2000). Instant Notes in Immunology, Viva Books Pvt. Ltd., New Delhi.
6. Chakraborty, B. (1998). A Text Book of Microbiology, New Central Book Agency (P) Ltd, Calcutta, India. 12
7. Ananthanarayana, R. and Panicker, C.K.S. (2000). Text Book of Microbiology, 6th Edition, Oriental Longman Publications, USA.
8. Annadurai, B. (2008). A Textbook of Immunology and Immunotechnology. S. Chand & Co. Ltd., New Delhi.
9. Dey, N., T.K. and Sinha, D. (1999). Medical Bacteriology Including Medical Mycology and AIDS. New Central Book Agency (P) Ltd. Calcutta, India.
10. Shetty, N. (1994). Imuunology - Introductory Textbook. New Age International Pvt. Ltd., New Delhi.
11. Singh, R.P. (2007). Immunology and Medical Microbiology. Kalyani Publishers, New Delhi.
12. Reddy, S.R. and Reddy, K.R. (2006). A Text Book of Microbiology - Immunology and Medical Microbiology, Himalaya Publishing House, Mumbai.
13. Gupte, S. (1995). Short Text Book of Medical Microbiology, 8th Edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi

  
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**SEMISTER-V**

**Paper VI: AGRICULTURE AND ENVIRONMENTAL MICROBIOLOGY**

**UNIT - I Microbes in Agriculture**

Physical and chemical characteristics of soil. 2 Hrs

Rhizosphere and phyllosphere. 1 Hr

Plant growth-promoting microorganisms -mycorrhizae, rhizobia, *Azospirillum*, *Azotobacter*, cyanobacteria, *Frankia* and phosphate-solubilizing microorganisms.

Outlines of biological nitrogen fixation (symbiotic, non-symbiotic). 8 Hrs

Biofertilizers - *Rhizobium*. 1 Hr

**UNIT:II Plant Diseases & Biocontrol**

Concept of disease in plants. 1 Hr

Symptoms of plant diseases caused by fungi, bacteria, and viruses. 3 Hrs

Plant diseases caused by fungi (groundnut rust), bacteria (angular leaf spot of cotton) and viruses (tomato leaf curl). 3 Hrs

Principles of plant disease control. 2 Hrs

Biological control of plant diseases. Biopesticides – *Bacillus thuringiensis*,

Nuclear polyhedrosis virus (NPV), *Trichoderma*. 2 Hrs

**UNIT : III Microbial ecology**

Microorganisms of environment (soil, water and air). 2 Hrs

Role of microorganisms in nutrient cycling (carbon, nitrogen, sulphur). 4 Hrs

Microbial interactions – mutualism, commensalism, antagonism, competition, parasitism, predation. 4 Hrs

**UNIT-IV Role of microbes in environmental Pollution**


Microbiology of potable and polluted waters. *E. coli* and *Streptococcus faecalis* as indicators of water pollution. Sanitation of potable water. 5 Hrs

Sewage treatment (primary, secondary and tertiary). 2 Hrs


Outlines of biodegradation of environmental pollutants – pesticides. 2 Hrs

Solid waste disposal – sanitary land fills, composting. 2 Hrs

  
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## References:

1. Alexander, M. (1985). Introduction to Soil Microbiology, 3rd Edition. Wiley Eastern Ltd., New Delhi.
2. Paul, E.A. and Clark, F.E. (1989). Soil Microbiology and Biochemistry, Academic Press, USA.
3. Subba Rao, N.S. (1993). Biofertilizers in Agriculture and Forestry, 3rd Edition Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi. BSc CBCS syllabus 2016-17
4. Rangaswami, G. and Bhagyaraj, D.J. (2001). Agricultural Microbiology, 2nd Edition, Prentice Hall of India, New Delhi.
5. Atlas, R.M. and Bartha, R. (1998). Microbial Ecology - Fundamentals and Applications, Addison Wesley Longman, Inc., USA
6. Lynch, J.M. and Poole, N.J. (1979). Microbial Ecology - A Conceptual Approach, Blackwell Scientific Publications, USA
7. Subba Rao, N.S. (1999). Soil Microorganisms and Plant Growth. Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.
8. Reddy, S.R. and Singara Charya, M.A. (2007). A Text Book of Microbiology - Applied Microbiology. Himalaya Publishing House, Mumbai.
9. Singh, R.P. (2007). Applied Microbiology. Kalyani Publishers, New Delhi.

  
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**SEMISTER-VI**  
**Paper VII: CLINICAL MICROBIOLOGY**

**UNIT - III Clinical Microbiology 23 Hrs**

History of medical microbiology. 1 Hr

Normal flora of human body. 2 Hrs

Definition of infection and types of infections,  
antagonism of indigenous flora. 3 Hrs

Anti-bacterial substances – lysozyme, complement, antiviral substances,  
phagocytosis. 2 Hrs

**UNIT-II**

General principles of diagnostic microbiology. 1 Hr

Collection, transport and processing of clinical samples. 3 Hrs

General methods of laboratory diagnosis – cultural, biochemical, serological  
and molecular methods. 5 Hrs

Tests for antimicrobial susceptibility. 2 Hrs

Antiviral agents – interferon and base analogues. 2 Hrs

Host-pathogen interactions. Bacterial toxins, virulence and attenuation. 2 Hrs

**UNIT - III**

Elements of chemotherapy – therapeutic drugs.. 2 Hrs

Mode of action of penicillin and sulpha drugs, and their clinical use.

Drug resistance 3 Hrs

Preventive control of diseases – active and passive immunization. 3 Hrs

Vaccines – natural and recombinant. 2 Hrs

**UNIT-IV:**

General account of the following diseases – causal organisms, pathogenesis,  
epidemiology, diagnosis, prevention and control of:

Air-borne diseases - Tuberculosis, Influenza

Food and water-borne diseases - Cholera, Typhoid, Hepatitis- A

Poliomyelitis, Amoebiasis

Insect-borne diseases - Malaria, Filariasis, Dengue fever

Contact diseases - Syphilis, Gonorrhoea

Zoonotic diseases - Rabies, Anthrax


Blood-borne diseases - Serum hepatitis, AIDS 12 Hrs

General account of nosocomial infections. 1 Hr

  
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1. Ananthanarayana, R. and Panicker, C.K.S. (2000). Text Book of Microbiology, 6th Edition, Oriental Longman Publications, USA.
2. Gupte, S. (1995). Short Text Book of Medical Microbiology, 8th Edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi.
3. Annadurai, B. (2008). A Textbook of Immunology and Immunotechnology. S. Chand & Co. Ltd., New Delhi.
4. Dey, N., T.K. and Sinha, D. (1999). Medical Bacteriology Including Medical Mycology and AIDS. New Central Book Agency (P) Ltd. Calcutta, India.
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## LAB-III:IMMUNOLOGY AND MEDICAL MICROBIOLOGY (Practicals) 90 Hrs

1. Blood tests – TC, DC
2. Estimation of blood haemoglobin.
3. Determination of blood groups and Rh typing.
4. Antigen-antibody interactions in Widal test, VDRL test, and Precipitation – Ouchterlony double diffusion test.
5. Acid-fast staining of mycobacteria (stained/permanent slides).
6. Isolation and identification of medically important bacteria (*E. coli*, *Klebsiella*, *Pseudomonas*, *Staphylococcus* and *Streptococcus*) by cultural, microscopic and biochemical tests.
7. Antibiotic sensitivity testing – disc diffusion method.
8. Parasites – Malarial parasite, *Entamoeba* (study of permanent slides).
9. Observation of fungal pathogen (*Candida*).
10. Tests for disinfectant (Phenol coefficient).


### REFERENCE BOOKS FOR LAB:

1. Ananthanarayana, R. and Panicker, C.K.S. (2000). Text Book of Microbiology, 6th Edition, Oriental Longman Publications, USA.
2. Gupte, S. (1995). Short Text Book of Medical Microbiology, 8th Edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi.
3. Annadurai, B. (2008). A Textbook of Immunology and Immunotechnology. S. Chand & Co. Ltd., New Delhi.
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5. Shetty, N. (1994). Immunology – Introductory Textbook. New Age International Pvt. Ltd., New Delhi

  
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**SEMISTER-VI**  
**Paper VIII: FOOD AND INDUSTRIAL MICROBIOLOGY**

**UNIT – I Food Microbiology 22 Hrs**

Microorganisms of food spoilage and their sources. 3 Hrs  
Spoilage of different food materials - fruits, vegetables, meat, fish. 3 Hrs  
Canned foods. Food intoxication (botulism and staph poisoning), foodborne diseases (salmonellosis and shigellosis) and their detection. 5 Hrs  
General account of food preservation. 2 Hrs

**UNIT-II**

Microbiological production of fermented foods – bread, cheese, yogurt. 3 Hrs  
Biochemical activities of microbes in milk. 2 Hrs  
Microorganisms as food – SCP, edible mushrooms (white button, oyster and paddy straw). 2 Hrs  
Concept of probiotics. 2 Hrs


**UNIT – III Industrial Microbiology 22 Hrs**

Microorganisms of industrial importance -yeasts, moulds, bacteria,actinomycetes.2 Hrs  
Screening and isolation of industrially-important microorganisms. 3 Hrs  
Outlines of strain improvement. 2 Hrs  
Types of fermentation – aerobic, anaerobic, batch, continuous, submerged, surface, solid state. 4 Hrs  
Design of a stirred tank reactor fermentor. Fermentation media. 3 Hrs

**UNIT-IV**

Industrial production of alcohols (ethyl alcohol), beverages (beer), enzymes (amylases), antibiotics (penicillin), amino acids (glutamic acid), organic acids (citric acid), vitamins (B12), biofuels (biogas - methane). 8 Hrs

  
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## References:

1. Stanbury, P.F., Whitaker, A. and Hall, S.J. (1997). Principles of Fermentation Technology, Aditya Books (P) Ltd. New Delhi.
2. Doyle, M.P., Beuchat, L.R. and Montville, T.J. (1997). Food Microbiology: Fundamentals and Frontiers. ASM Press, Washington D.C., USA
3. Frazier, W.C. and Westhoff, D.C. (1988). Food Microbiology, Mc Graw-Hill, New York.
4. Jay, J.M. (1996). Modern Food Microbiology, Chapman and Hall, New York. 15
5. Ray, B. (1996). Fundamentals of Food Microbiology, CRC Press, USA.
6. Rangaswami, G. and Bhagyaraj, D.J. (2001). Agricultural Microbiology, 2nd Edition, Prentice Hall of India, New Delhi.
7. Atlas, R.M. and Bartha, R. (1998). Microbial Ecology - Fundamentals and Applications, Addison Wesley Longman, Inc., USA
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**Model question paper B.Sc.I YEAR CBCS**

**SEMESTER-I**

**INTRODUCTORY MICROBIOLOGY-I**

**70MARKS 3HRS**

**SECTION-I**

**5X2=10M**

**VERY SHORT ANSWER TYPE QUESTIONS**

**ANSWER ALL FIVE OF THE FOLLOWING**

- 1.Simple staining
- 2.Robert koch
- 3.Filter sterilization.
- 4.Micromanipulator
- 5.Spontaneous generation

**SECTION-II**

**4X5=20**

**SHORT ANSWER TYPE QUESTIONS**

**ANSWER ANY FOUR OF THE FOLLOWING**

6. Dark field Microscopy
- 7 Acid fast staining
8. Edward Jenner
9. Tyndelization
10. Streak plate method.
11. Lyophilization.

**SECTION III**

**4X10=40**

**(ESAY TYPE QUESTIONS)**

**ANSWER ALL OF THE FOLLOWING**

12.(a) Write about the history of Microbiology.

OR

(b) write the contributions of the following scientists - **Antony von Leeuwenhoek, Edward Jenner, Louis Pasteur, Robert Koch, Iwanowsky, Beijerinck, Winogradsky and Alexander Fleming.**

13.(a) write a brief note on staining techniques.

OR

(b) write a Essay on Electron Microscopy.

14.(a) define Sterilization and write about the Physical Sterilization methods.

OR

(b) what are chemosterillants and write about the chemical sterilization agents.


15.(a) define pure culture and write about the pure culture isolation methods.

OR

(b) write a general account on pure culture preservation methods

  
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**Model question paper B.Sc.I YEAR CBCS**

**SEMESTER-II**

**INTRODUCTORY MICROBIOLOGY-II**

**70MARKS 3HRS**

**SECTION-I**

**5X2=10M**

**VERYSHORT ANSWER TYPE QUESTIONS  
ANSWER ANY FIVE OF THE FOLLOWING**

- 1.Mycoplasmas
- 2.Flagella.
- 3.Actinomycetes
- 4.poly sacharides.
- 5.Sterols.

**SECTION-II**

**4X5=20**

**SHORT ANSWER TYPE QUESTIONS  
ANSWER ANY FOUR OF THE FOLLOWING**

6. Cyanobacteria.
7. TMV(Tobacco Mosaic Virus)
8. Nucleotides.
9. Phospholipids.
10. Storage Granules.
- 11.Archeabacteria

**SECTION-III**

**4X10=40**


**(ESAY TYPE QUESTIONS)**

**ANSWER ALL OF THE FOLLOWING**

- 1.(a) Write about the Diffentioation of Procaryotes and Eucaryotes .  
OR  
(b) write the CARL WOOSE System of Classification.
- 2.(a)write a brief note on Ultra Structure of Bacteria.  
OR  
(b)write a Essay on General characteristics of Viruses.
- 3.(a) write about the Classification of carbohydrates.  
OR  
(b) Give general account of Amino acid and Proteins.
- 4.(a)discuss about the fatty acids and lipids.  
OR  
(b)write about the Buffers And their Biological Significance

  
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SEMESTER-III

MICROBIAL PHYSIOLOGY-III

70MARKS 3HRS

SECTION-I

5X2=10M

VERYSHORT ANSWER TYPE QUESTIONS  
ANSWER **ALL** OF THE FOLLOWING

1. Autotrophs
2. Enriched media.
3. Effect of temperature on Enzyme activity.
4. Glyoxalate Cycle.
5. Anaerobic Respiration.

SECTION-II

4X5=20

SHORT ANSWER TYPE QUESTIONS  
ANSWER **ANY FOUR** OF THE FOLLOWING

6. Active transport
7. Effect of temperature on microbes
8. Lock and key model
9. Cofactors.
10. Alcohol fermentation.
11.  $\beta$ -Oxidation of fatty acids.

SECTION-III


4X10=40


(ESAY TYPE QUESTIONS)  
ANSWER **ALL** OF THE FOLLOWING

- 1.(a) Write about the Nutritional Groups of Microorganisms.  
OR  
(b) Define media and write about the types of Media.
- 2.(a) what are Biocatalysts and write about the properties and classification of them .  
OR  
(b) Define Enzyme Inhibition and write about the types of Enzyme Inhibition .
- 3.(a) Write about the GLYCOLYSIS.  
OR  
(b) What is Oxidative phosphorylation and write about ETS(Electron Transport System).
- 4.(a) write about Fermentation.  
OR  
(b) write a General account on Oxygenic and Non-Oxygenic Photosynthesis in Bacteria.

  
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Model question paper B.Sc.II YEAR CBCS  
SEMESTER-IV

MICROBIAL GENETICS-IV

70MARKS 3HRS

**SECTION-I**  
**VERYSHORT ANSWER TYPE QUESTIONS**  
**ANSWER ALL OF THE FOLLOWING**

5X2=10M

1. Conjugation
2. Semi-conservative Replication
3. Muton
4. Structural Genes
5. Ligases

**SECTION-II**  
**SHORT ANSWER TYPE QUESTIONS**  
**ANSWER ANY FOUR OF THE FOLLOWING**

4X5=20

6. chemical mutagens
7. t-RNA
8. Ribosomes
9. lac-Operon
10. Restriction enzymes
11. c-DNA Libraries.


**SECTION-III**  
**(ESAY TYPE QUESTIONS)**  
**ANSWER ALL OF THE FOLLOWING**


4X10=40

- 1.(a) Write about the Structure of DNA.  
OR  
(b) Define plasmid and write about the types of Plasmids.
- 2.(a) what are Mutagens and write about the physical and chemical mutagens .  
OR  
(b) write a brief note on Induced Mutations.
- 3.(a) Write about the RNA Biosynthesis(Transcription)in prokaryotes.  
OR  
(b) write a brief note on Genetic Code.
- 4.(a) Discuss the Enzymes involved in Genetic Engineering.  
OR  
(b) write a general account on Cloning methods.

  
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Model question paper B.Sc.III YEAR

**CBCS**

**SEMESTER-V**

**IMMUNOLOGY-V**

**70MARKS 3HRS**

**SECTION-I**

**5X2=10M**

**VERYSHORT ANSWER TYPE QUESTIONS**

**ANSWER ALL FIVE OF THE FOLLOWING**

- 1.Macrophages
- 2.Antibodies
- 3.Agglutination
- 4.Blood Groups
- 5.HAT Medium

**SECTION-II**

**4X5= 20**

**SHORT ANSWER TYPE QUESTIONS**

**ANSWER ANY FOUR OF THE FOLLOWING**

6. Louis Pasteur
7. Humoral immunity
8. Ig E
9. Polyclonal Antibodies
10. Autoimmunity.
- 11.ELISA

**SECTION-I**

**4X10=40**

**(ESAY TYPE QUESTIONS)**

**ANSWER ALL OF THE FOLLOWING**

12.(a) Write about the History of Immunology.

**OR**

(b) Define Immunity and write about the types of Immunity.

13.(a). what are Antigens and Write about the types of Antigens

**OR**

(b) write a brief note on Basic Structure of Immunoglobullins

14.(a) Discuss about RIA (Radio Immuno Assay).


**OR**

(b) Write about ELISA.


15.(a) Discuss about Autoimmunity.


**OR**

(b)write a general account on Hybridoma Technology

  
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**CBCS**

**SEMESTER-V;Agri&Environmental Microbiology -VI**

**70MARKS 3HRS**

**SECTION-I**

**5X2=10M**

**(SHORT ANSWER TYPE QUESTIONS)**

**ANSWER ALL OF THE FOLLOWING**

- 1.Cyanobacteria.
- 2.Nuclear Poly Hedrosis Virus.
- 3.Sulphur Cycle.
- 4.Trickling filters.
- 5.Commensalism.

**SECTION-II**

**4X5=20**

**SHORT ANSWER TYPE QUESTIONS**

**ANSWER ANY FOUR OF THE FOLLOWING**

- 6.Write a note on PGPR.
- 7.Discuss Nitrogen cycle.
- 8.Explain about Mycorrhizae.
- 9.Mutualism.
- 10.Write about Bacillus Thuringensis.
- 11.Degradation of pesticides.


**SECTION-III**

**4X10=40**


**(ESAY TYPE QUESTIONS)**

**ANSWER ALL OF THE FOLLOWING**

1. (a) Write about the Biological Nitrogen fixation.  
OR  
(b) Discuss about Biofertilizers.
2. (a) write about the Biological Control of Diseases .  
OR  
(b)write a brief note on Biopesticides.
3. (a) what are Bio-Geo-Chemical Cycles and write about N<sub>2</sub> Cycle.  
OR  
(b) write a brief note on Microbial Interactions.
4. (a) Discuss about the sewage treatment methods.  
OR  
(b)write a general account on Biodegradation of Environmental Pollutants.

  
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Model question paper B.Sc.III YEAR  
SEMESTER-VI

**CBCS**

Medical microbiology-VII

**70MARKS 3HRS**

**SECTION-I**

**5X2=10**

**(VERY SHORT ANSWER TYPE QUESTIONS)  
ANSWER ALLOF THE FOLLOWING**

- 1.Infection
- 2.ELISA
- 3.Antibiotics
- 4.AIDS
- 5.Paul Ehrlich

**SECTION-II**

**4X5=20**

**SHORT ANSWER TYPE QUESTIONS  
ANSWER ANY FOUR OF THE FOLLOWING**

5. Phagocytosis
6. Lysozyme
7. ELISA
8. Drug resistance
9. Vaccines
10. Bacterial toxins.
- 11.Nosocomial infections

**SECTION-III**

**4X10=40**


**(ESAY TYPE QUESTIONS)  
ANSWER ALL OF THE FOLLOWING**

- 1.(a) Write about the History of Medical microbiology.  
OR  
(b) write about the Normal flora of Human body.
- 2.(a) write about the Different types of Laboratory diagnosis methods .  
OR  
(b)write a brief note on Sample collection,transport and processing of clinical samples.
- 3.(a) what are Antibiotics and Write about the mode of action and clinical uses of Penicillins.  
OR  
(b) write a brief note on sulfa Drugs.
- 4.(a) Discuss the Pathogenicity and treatment for Tuberculosis.  
OR  
(b)write a general account on Zoonotic infections.

  
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**CBCS**

SEMESTER-VI

**FOOD&INDUSTRIAL MICROBIOLOGY-VIII**

**70MARKS 3HRS**

**SECTION-I**

**5X2=10**

**(VERY SHORT ANSWER TYPE QUESTIONS)**

**ANSWER ALLOF THE FOLLOWING**

- 1.Food Spoilage
- 2.SCP
- 3.Submerged Fermentation
- 4.Citric Acid Uses
- 5.Fermentor

**SECTION-II**

**4X5=20**

**SHORT ANSWER TYPE QUESTIONS**

**ANSWER ANY FOUR OF THE FOLLOWING**

5. Botulism
6. Appertization(canning)
7. Edible mushrooms
8. Bioreactor
9. Fermentation media
10. Amylases
11. Citric acid production.

**SECTION-III**

**4X10=40**

**(ESAY TYPE QUESTIONS)**

**ANSWER ALL OF THE FOLLOWING**

- 1.(a) Write about the Food Spoilage.

**OR**

- (b) Discuss about the Food intoxication.

- 2.(a) write about the Food Preservation methods .

**OR**

- (b)write a brief note on Single Cell Proteins.(SCP)

- 3.(a) Write about the types of Screening methods for the isolation of industrially important microorganisms.

**OR**


- (b) write a brief note on types of Fermentation.

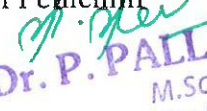
- 4.(a) write about the industrial production of Alcohol by fermentation.

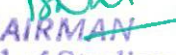
**OR**

- (b)write a General account on the industrial production of Penicillin

  
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50MARKS

3HRS

SECTION-I

1X20=20

1.MAJOR QUESTION

SECTION-II

1X10=10

2.MINOR QUESTION

SECTIONIII  
(SPOTTINGS)

5X2=10

3.

4.

5.

6.

7.


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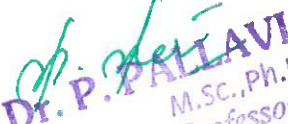
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INTRODUCTORY MICROBIOLOGY-I

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 INTRODUCTORY MICROBIOLOGY-II

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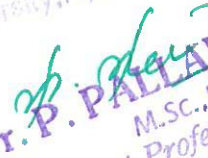
SEMESTER-III,  
MICROBIAL PHYSIOLOGY-I

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SEMESTER-V,  
IMMUNOLOGY -V

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SEMESTER-V,  
 AGRICULTURE & ENVIRONMENTAL MICROBIOLOGY-VI

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SEMESTER-VI,  
MEDICAL MICROBIOLOGY-VII

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 FOOD & INDUSTRIAL MICROBIOLOGY-VIII

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