

**FACULTY OF SCIENCE**  
**B.Sc., III-Semester (Regular-Backlog) Examinations, February/March-2022**  
**MICROBIOLOGY**  
**SEC-I**  
**Haematology**

**Time: 1½ Hours**

**Max. Marks: 40**

**Section - A (Short Answer Questions)**

**2 x 5=10M**

**Note:** Answer the following questions not exceeding 20 lines each.

1. Anticoagulants
2. Blood Collection and preservation

**Section - B (Essay Answer Questions)**

**2 x 15=30M**

**Note:** Answer any **Two** of the following questions not exceeding 4 pages each.

3. Explain the total blood picture and its importance.
4. How is haemoglobin estimated and what is its importance?
5. Explain the principle and method of ESR (Erythrocyte Sedimentation). Why is it important?
6. Differentiate haemophilia and anemia? How are they diagnosed and managed?



**FACULTY OF SCIENCE**  
**B.Sc., I-Semester (Regular-Backlog) Examinations, February/March-2022**  
*(2020-2021 & 2021-2022 Batches)*  
**MICROBIOLOGY**  
**Paper-I**  
**General Microbiology**

**Time: 3 Hours**

**Max. Marks: 80**

**Section - A (Short Answer Questions)**

**8 x 4=32M**

**Note:** Answer any **Eight** of the following questions not exceeding 20 lines each.

1. Louis Pasteur
2. SEM
3. Bacterial cell wall
4. Storage at low temperature
5. Heterotrophs
6. Substrate level phosphorylation
7. Laminar airflow
8. Synchronous growth
9. Differential stain
10. TMV
11. Simple and complex media
12. Autoclave

**Section - B (Essay Answer Questions)**

**4 x 12=48M**

**Note:** Answer any **Four** of the following questions in not exceeding 4 pages each.

13. Discuss various applications of Microbiology with suitable examples.
14. Write on bacterial structural stains.
15. Give a note on general characteristics of Virus and add a brief note on their classification.
16. Explain various pure culture isolation techniques.
17. Explain the mechanism of uptake of nutrients by a cell.
18. Discuss TCA cycle with various steps involved in it.
19. Write a detailed note on radiation methods of sterilization.
20. Explain various growth phases in batch culture with its significance.



**FACULTY OF SCIENCE**  
**B.Sc., V-Semester (Regular) Examinations, February/March-2022**  
**BOTANY**  
**Paper- Generic Elective**  
**Industrial Microbiology**

Time: 3 Hours

Max. Marks: 80

**Section - A (Short Answer Questions)**

5 x 4=20M

**Note:** Answer any **Five** of the following questions not exceeding 20 lines each.**సూచన:** క్రింది వానిలో ఏవేని ఐదు ప్రశ్నలకు ఒక్కోదానికి 20 పంక్తులకు మించని జవాబు వ్రాయుము.

1. Liquid state fermentations  
ద్రవస్థితి కిణ్వనములు
2. Microbes in industry  
పారిశ్రామిక రంగంలో సూక్ష్మజీవులు
3. Precipitation  
అవక్షేపితం
4. Fermentation conditions  
కిణ్వణ ప్రక్రియకు గల పరిస్థితులు
5. Microorganisms in soil  
మృత్రికలో సూక్ష్మజీవులు
6. Immobilized enzymes  
స్థిరీకరణ ఎంజైములు
7. BOD  
జీవ ఆక్సిజన్ డిమాండ్
8. Mycorrhizae  
శిలీంధ్రమూలాలు (మైకోరైజె)

**Section - B (Essay Answer Questions)**

4 x 15=60M

**Note:** Answer any **Four** of the following questions in not exceeding 4 pages each.**సూచన:** క్రింది వానిలో ఏవేని నాలుగు ప్రశ్నలకు ఒక్కో దానికి 4 పేజీలకు మించని జవాబు వ్రాయుము.

9. Write an account on typical bioreactor.  
సాధారణ జీవరియాక్టర్ల గురించి వ్రాయుము.
10. Write in detail about microbes in environment.  
పర్యావరణంలోగల సూక్ష్మజీవుల గురించి వ్రాయుము.
11. Write an account on types and importance of filtration.  
పడపోత విధానం రకాలు మరియు ప్రాముఖ్యత గురించి వ్రాయుము.
12. Write an account on antibiotics.  
యాంటి బయోటిక్స్ గురించి వ్రాయుము.
13. Write in brief note on distribution of microbes in air and water.  
గాలిలో మరియు నీటిలోని సూక్ష్మజీవుల వ్యాప్తి గురించి క్లుప్తంగా వ్రాయుము.
14. Write an account on role of microbes on quality of environment.  
పర్యావరణ నాణ్యతకు సూక్ష్మజీవుల పాత్ర గురించి వ్రాయుము.
15. Write an account on role of microbes in agriculture.  
సాగు విధానంపై సూక్ష్మజీవుల పాత్ర గురించి వ్రాయుము.
16. Write an account on biological fixation microorganisms.  
జీవస్థిరీకరణలో సూక్ష్మజీవుల పాత్రను గురించి వ్రాయుము.

**FACULTY OF SCIENCE**  
**B.Sc., V-Semester (Regular) Examinations, February/March-2022**  
**MICROBIOLOGY**  
**Paper- Generic Elective**  
**Microbiology and Human Health**

**Time: 3 Hours**

**Max. Marks: 80**

**Section - A (Short Answer Questions)**

**5 x 4=20M**

**Note:** Answer any **Five** of the following questions not exceeding 20 lines each.

1. Germ theory of disease
2. Nutrient agar
3. Normal Microbial Flora
4. Flu
5. Prophylaxis
6. Host resistance
7. Biomedical waste
8. Incineration

**Section - B (Essay Answer Questions)**

**4 x 15=60M**

**Note:** Answer any **Four** of the following questions in not exceeding 4 pages each.

9. What are important contributions of Louis Pasteur for development of microbiology?
10. Explain cultivation methods for microorganisms.
11. Describe malaria as an infectious disease.
12. Write on TB and its preventive and control practices.
13. What are vaccines and how are they important?
14. What is host resistance? Explain innate and acquired immunity.
15. What are the guidelines given by central pollution control board for prevention of diseases?
16. What is steam sterilization and why is it important?



FACULTY OF SCIENCE  
**B.Sc., I- Semester (Backlog) Examination, Nov./Dec.,-2019**  
Microbiology-1  
(General Microbiology-I)

**Time : 3 Hours**

**Max. Marks : 80**

**Note :** Answer any **FIVE** questions in section-A and all questions in section-B.

**Section-A (Short Answers)**

**5x4=20M**

1. Louis Pasteur
2. Alexander Fleming
3. Resolving power
4. Micrometry
5. Bergey's manual
6. Cyanobacteria
7. Peptidoglycan
8. Structure of HIV

**Section-B (Essay Type Answers)**

**4x15=60M**

- 9.a) Write on applied microbiology and its importance.  
**OR**
- b) Write on scope of microbiology in today's science.
- 10.a) Explain the principle and working of phase contrast microscope  
**OR**
- b) What is differential staining and how is it performed?
- 11.a) What is five kingdom concept and how is it arrived?  
**OR**
- b) Write on general characters of bacteria.
- 12.a) Describe the general characters of molds and yeasts.  
**OR**
- b) Write on the morphology and structural detail of TMV.



FACULTY OF SCIENCE  
**B.Sc., I- Semester (Regular) Examination, Nov./Dec.,-2019**  
Microbiology-1  
(General Microbiology-I)

**Time : 3 Hours**

**Max. Marks : 80**

**Note :** Answer any **Eight** questions in section-A and all questions in section-B.

**Section-A (Short Answers)**

**8x4=32M**

1. Thermal death point
2. Discovery of penicillin
3. Lethal radiation
4. Resolving power
5. Stage micrometer
6. Negative staining
7. 10 fold dilution
8. Defined medium
9. Cryopreservation
10. Storage granules
11. HIV
12. Capsule

**Section-B (Essay Type Answers)**

**4x12=48M**

- 13.a) What is chemosterilization and how is it done?  
**OR**
- b) What are Koch postulates and how are they important?
- 14.a) What is differential staining and how is it important?  
**OR**
- b) Explain the principle and working of bright field microscope.
- 15.a) What are the methods of pure culture development and how are they important?  
**OR**
- b) What is Bergey's manual and how is it important?
- 16.a) Write on the general characters of Mycoplasma and Rickettsia.  
**OR**
- b) Explain the ultra structure of a bacterial cell with labeled diagram.

FACULTY OF SCIENCE  
**B.Sc., Semester II (Backlog) Examination, May - 2019**  
Microbiology-2  
(General Microbiology-I)

**Time: 3 Hours**

**Max. Marks: 80**

**Note:** Answer any **FIVE** question in Section-A and **All** questions in Section-B.

**Section-A (Short Type Answers)**

**5x4=20 M**

1. Rickettsia
2. Bergey's manual
3. Bacterial flagellum
4. TMV
5. Structure of triglyceride
6. Differences between starch and cellulose
7. Buffers
8. Structure of adenine nucleoside

**Section-B (Essay Type Answers)**

**4x15=60 M**

- 9.a) What is the contribution of Carl Woese to microbial taxonomy?  
**OR**
- b) Write on the general characters of actinomycetes.
- 10.a) Explain the general characters of yeasts and molds.  
**OR**
- b) Describe the structure and replication of lambda phage.
- 11.a) Write the structure of any two disaccharides and explain their biological importance.  
**OR**
- b) Write on the general characteristics of amino acids and classify them.
- 12.a) What is chromatography? Write on paper and thin layer chromatography methods.  
**OR**
- b) Explain the principle and application of colorimetry.



FACULTY OF SCIENCE  
**B.Sc., Semester II (Regular/Backlog) Examination, May - 2019**  
Microbiology-2  
(General Microbiology-I)

**Time: 3 Hours****Max. Marks: 80****Note:** Answer any **FIVE** question in Section-A and **All** questions in Section-B.**Section-A (Short Answers)****5x4=20 M**

1. Laminar Air Flow
2. Gamma rays
3. Heat Enrichment
4. Sub culturing
5. Monosaccharides
6. Essential Aminoacids
7. pH measurement
8. Gel Electrophoresis

**Section-B (Essay Type Answers)****4x15=60 M**

- 9.a) What is Sterilization and give its significance. Write a detail note on filter Sterilization.
- OR**
- b) Give a note on Phenols & halogens as Sterilizing agents.
- 10.a) Write on various pure culture techniques.
- OR**
- b) Explain the significance of Microbial pure culture preservation. Add a note on Preservation using mineral oils.
- 11.a) Explain in brief about general characteristics of carbohydrates.
- OR**
- b) Write on general characteristics of proteins.
- 12.a) Give a note on types of buffers and their uses in biological reactions.
- OR**
- b) Explain the principle of colorimetry. Give a detail a note on its applications.



FACULTY OF SCIENCE  
**B.Sc., II - Semester (Backlog) Examinations, Sept./Oct.- 2020**  
Microbiology-2  
(General Microbiology-I)

**Time : 2 Hours**

**Max. Marks : 80**

**Note :** Answer any **Four** from the following essay type questions.

**4x20=80M**

- 1) Give a detailed note on radiation methods of sterilization with their merits & demerits.
- 2) Write on various chemical methods of sterilization.
- 3) Explain in detail about Enrichment culturing & Streak plate methods of Isolation of pure cultures.
- 4) Explain the significance of Sub culturing. Add a note on preservation of Microbial cultures at low temperature.
- 5) Write on outline classification of carbohydrates.
- 6) Explain the double helix structure of DNA. Add a note on t-RNA.
- 7) Explain about paper and thin-layer chromatography.
- 8) Write the principles and applications of Electrophoretic techniques briefly.



FACULTY OF SCIENCE  
**B.Sc., II - Semester (Backlog) Examinations, Sept./Oct.- 2020**  
Microbiology-2  
(General Microbiology-I)

**Time : 2 Hours**

**Max. Marks : 80**

**Note :** Answer any **Four** from the following essay type questions.

**4x20=80M**

- 1) Differentiate the cellular organization of prokaryotes and eukaryotes with labelled diagram and explanation.
- 2) What is three domain classification and how is it important?
- 3) Describe the structure and general characters of protozoa.
- 4) Write about the structure of HIV and its impact on human society.
- 5) Explain the general characters of polysaccharides and what is their importance?
- 6) What are phospholipids and how are they important in biological structures?
- 7) Explain the principle and working of a colorimeter.
- 8) Write about the structure and role of nucleotides in DNA structure.



**FACULTY OF SCIENCE**  
**B.Sc., II-Semester (Backlog) Examinations, December-2020**  
**MICROBIOLOGY-2**  
**(General Microbiology-II)**

**Time: 2 Hours**

**Max. Marks: 80**

**Note:** Answer any **Four** of the following questions.

**4x20=80M**

1. Explain the design, principle and working of a steam sterilizer. Give a note on filter sterilization.
2. How is electromagnetic radiation used for sterilization purposes? Explain.
3. Describe different methods practiced for isolating microbial pure culture.
4. Discuss different methods of preservation of Microbial cultures. What is lyophilisation and how is it important?
5. Classify the lipids and write on their biological importance.
6. What are nucleic acids and how are they made and function in microorganisms?
7. What is buffer? Write on different buffers and their uses in enzyme reactions.
8. What is pH and how is it important in biology? Add a note on its measurement.



Code: 875/E/R

**FACULTY OF SCIENCE**  
**B.Sc., II-Semester (Regular) Examination, December-2020**  
**Microbiology-2**  
**(Microbial Physiology and Biochemistry)**

**Time: 2 Hours**

**Max. Marks: 80**

**Note:** Answer any **Four** of the following questions.

**4x20=80M**

1. Give a detailed account on different Nutritional groups of microorganisms.
2. Explain Synchronous and Continuous cultures and add a note on chemostat and turbidostat.
3. Describe Pentose Phosphate Pathway and add a note on its importance.
4. Explain electron transport and oxidative phosphorylation systems.
5. Explain the structure, classification, properties and biological importance of Lipids.
6. What are different types of RNAs? Explain their structure and functions.
7. Describe methods for measurement of pH in biological fluids and tissues.
8. What is chromatography? Give a detailed note on different types of chromatography and their significance.



**FACULTY OF SCIENCE**  
**M.Sc., II-Semester (CBCS) (Regular) Examinations, December-2020**  
**MICROBIOLOGY**  
**Paper-IV**  
**Pharmaceutical Microbiology**

**Time: 2 hours**

**Max Marks: 80**

**Note:** Answer any **Four** Questions.

**4 x 20=80M**

1. Explain the sterility testing of pharma products. Add a note on sterilization indicators.
2. How do pharmaceutical products spoiled by microbial activities? Give a note on their preservation.
3. Give the latest definition of antibiotic. Write on types of antibiotics and add a note on Paul Ehrlich contributions for development of Pharmaceutical Microbiology.
4. What are the non-medical uses of antibiotics? Discuss the role of non medicinal antimicrobial chemicals in preventing an infection.
5. Explain the mode of action of a sulfa drug and penicillin.
6. Write on the principles of chemotherapy. Add a note on control of antibiotic usage.
7. Explain different methods used for assay of antibiotics and non medicinal antimicrobials.
8. Discuss in detail biochemistry of drug resistance.



**FACULTY OF SCIENCE**  
**B.Sc., II-Semester (Backlog) Examinations, December-2020**  
**MICROBIOLOGY-2**  
**(General Microbiology-II)**

**Time: 2 Hours**

**Max. Marks: 80**

**Note:** Answer any **Four** of the following questions.

**4x20=80M**

1. Explain the design, principle and working of a steam sterilizer. Give a note on filter sterilization.
2. How is electromagnetic radiation used for sterilization purposes? Explain.
3. Describe different methods practiced for isolating microbial pure culture.
4. Discuss different methods of preservation of Microbial cultures. What is lyophilisation and how is it important?
5. Classify the lipids and write on their biological importance.
6. What are nucleic acids and how are they made and function in microorganisms?
7. What is buffer? Write on different buffers and their uses in enzyme reactions.
8. What is pH and how is it important in biology? Add a note on its measurement.



**FACULTY OF SCIENCE**  
**B.Sc., II-Semester (Regular) Examination, December-2020**  
**Microbiology-2**  
**(Microbial Physiology and Biochemistry)**

**Time: 2 Hours**

**Max. Marks: 80**

**Note:** Answer any **Four** of the following questions.

**4x20=80M**

1. Give a detailed account on different Nutritional groups of microorganisms.
2. Explain Synchronous and Continuous cultures and add a note on chemostat and turbidostat.
3. Describe Pentose Phosphate Pathway and add a note on its importance.
4. Explain electron transport and oxidative phosphorylation systems.
5. Explain the structure, classification, properties and biological importance of Lipids.
6. What are different types of RNAs? Explain their structure and functions.
7. Describe methods for measurement of pH in biological fluids and tissues.
8. What is chromatography? Give a detailed note on different types of chromatography and their significance.



**FACULTY OF SCIENCE**  
**M.Sc., II-Semester (CBCS) (Regular) Examinations, December-2020**  
**MICROBIOLOGY**  
**Paper-IV**  
**Pharmaceutical Microbiology**

**Time: 2 hours**

**Max Marks: 80**

**Note:** Answer any **Four** Questions.

**4 x 20=80M**

1. Explain the sterility testing of pharma products. Add a note on sterilization indicators.
2. How do pharmaceutical products spoiled by microbial activities? Give a note on their preservation.
3. Give the latest definition of antibiotic. Write on types of antibiotics and add a note on Paul Ehrlich contributions for development of Pharmaceutical Microbiology.
4. What are the non-medical uses of antibiotics? Discuss the role of non medicinal antimicrobial chemicals in preventing an infection.
5. Explain the mode of action of a sulfa drug and penicillin.
6. Write on the principles of chemotherapy. Add a note on control of antibiotic usage.
7. Explain different methods used for assay of antibiotics and non medicinal antimicrobials.
8. Discuss in detail biochemistry of drug resistance.





**FACULTY OF SCIENCE**  
**B.Sc., III – Year, (YW-Backlog) Examinations, Oct/Nov-2020**  
**MICROBIOLOGY**  
**Paper-III**  
**(Immunology and Medical Microbiology)**

**Time: 3 Hours**

**Max. Marks: 100**

**Note:** Answer **All** the questions from part A and Part B. Each question carries 5 marks in part A and 15 marks in part B.

**PART – A**  
**(Short Answer Type )**

**8x5=40M**

1. Acquired immunity
2. T Lymphocytes
3. Hypersensitivity
4. Agglutination
5. Normal flora of mouth
6. Antiviral phagocytosis
7. Recombinant vaccine
8. R-Plasmids

**PART – B**  
**(Essay Answer Type )**

**4x15=60M**

- 9.a) Write on important historical developments in immunology upto date.  
**OR**
- b) Explain the humoral and cell-mediated immunity and their importance.
- 10.a) What is labeled antibody technique? Explain any one such technique you studied.  
**OR**
- b) What are polyclonal antibodies? Write on these antibodies for their production for defending a disease in the body.
- 11.a) What are the general antiviral agents? Write on one such biological agent for its production and importance.  
**OR**
- b) What are the bacterial toxins and how are they important in causing a disease?
- 12.a) Explain the mode of action of penicillin on bacterial pathogen.  
**OR**
- b) Explain important aspects in preventive control of diseases.



**FACULTY OF SCIENCE**  
**B.Sc., III – Year, (YW-Backlog) Examinations, Oct/Nov-2020**  
**Computer Science**  
**Paper – III**  
**(Database Management System)**

**Time: 3 Hours**

**Max. Marks: 100**

**I. Answer All Questions.**

**Section – A**

**10x2=20M**

- a) What is a data model? What are its types?
- b) Define data dictionary.
- c) Differentiate between entity set & entity.
- d) Define normalization. What are its types?
- e) Write the syntax of Alter Table command.
- f) Define sub query. Give an example.
- g) What is a transaction?
- h) Write the advantages of DDBMS (Distributed Database Management System)
- i) Define data mining.
- j) What is data warehouse?

**Section – B**

**5x16=80M**

**II. Answer All the questions. All questions carry equal marks.**

- 1.a) Explain the advantages of DBMS (Database Management System).
- b) Write in detail about the Relational Data Model.

**OR**

- c) What are the relational set operation. Explain with examples.
- d) Explain the Data Abstraction.

- 3.a) Explain the Entity Relationship model.

- b) Explain in detail the need for normalization and define the various Normal Forms.

**OR**

- c) Briefly explain the database design challenges & goals.
- d) Write short Notes on (i) Surrogate key (ii) DeNormalization

- 4.a) Write about views with examples.

- b) Explain system development life cycle.

**OR**

- c) Explain SQL Data control language commands with syntax and examples.
- d) Briefly explain PL/SQL (procedural SQL).

- 5.a) Explain the concurrency control with optimistic method.

- b) Explain the characteristics of DDBMS.

**OR**

- c) Explain Database Recovery Management techniques.

- d) Write short Notes on (i) Transaction Transparency (ii) Query optimization

- 6.a) Write about star schemas.

- b) What are the steps in data mining process?

**OR**

- c) Explain the need and role of databases in an organization.

- d) Write about the database environment's human component.

FACULTY OF SCIENCE  
**B.Sc., III – Year, (YW-Backlog) Examinations, October- 2020**  
**MICROBIOLOGY**  
**Paper-IV**  
(Applied Microbiology)

**Time : 3 Hours**

**Max. Marks : 100**

**Note :** Answer all questions from part A and Part B. Each question carries 5 marks in Part A and 15 marks in Part B.

**PART – A**  
**(Short Answer Type)**

**8x5=40M**

1. Phillosphere
2. *Azospirillum*
3. Denitrification
4. Microbial antagonism
5. Button Mushrooms
6. Shigellosis
7. Secondary screening
8. Non distilled beverages

**PART-B**  
**(Essay Answer Type)**

**4x15=60M**

9. (a) What are plant growth promoting microorganisms and how they important?

**OR**

(b) What are biopesticides and how are they important in present day agriculture?

10.(a) Explain the role of microorganisms in nutrient recycling by taking C as example.

**OR**

(b) What is microbiological quality of potable waster and how is it important for health?

11.(a) Write on the biochemical activities of microorganisms in milk and its importance.

**OR**

(b) What is food intoxication? Write on the factors responsible for food spoilage.

12.(a) What is microbial strain improvement/ Explain different methods practiced for improving a production strain.

**OR**

(b) Explain industrial production of ethyl alcohol with flow chart.



Code: 791/E/BL

**FACULTY OF SCIENCE**  
**B.Sc., III-Semester (Backlog) Examinations, December-2020**  
**MICROBIOLOGY-3**  
**(Microbial Physiology and Enzymology)**

**Time: 2 Hours**

**Max. Marks: 80**

**Note:** Answer any **Four** of the following questions.

**4x20=80M**

1. What are the general nutritional requirements of microorganisms and how are they important? Add a note on nutritional group of microorganisms.
2. Describe the photosynthetic apparatus in prokaryotes. Given an outline of oxygenic photosynthesis in bacteria.
3. What are selective, enrichment and differential media and how are they useful?
4. Explain microbial growth phases in batch culture. Add a note on factors influencing microbial growth.
5. Explain the Krebs's cycle and its importance.
6. What is oxidative phosphorylation and how is it important in energy generation?
7. Differentiate co-factors and coenzymes and how are they important?
8. Explain induced fit and lock and key models of enzyme catalyzed reactions.



**FACULTY OF SCIENCE**  
**B.Sc., III-Semester (Backlog) Examinations, December-2020**  
**MICROBIOLOGY-3**  
**(Microbial Physiology and Enzymology)**

**Time: 2 Hours**

**Max. Marks: 80**

**Note:** Answer any **Four** of the following questions.

**4x20=80M**

1. What are the general nutritional requirements of microorganisms and how are they important? Add a note on nutritional group of microorganisms.
2. Describe the photosynthetic apparatus in prokaryotes. Given an outline of oxygenic photosynthesis in bacteria.
3. What are selective, enrichment and differential media and how are they useful?
4. Explain microbial growth phases in batch culture. Add a note on factors influencing microbial growth.
5. Explain the Krebs's cycle and its importance.
6. What is oxidative phosphorylation and how is it important in energy generation?
7. Differentiate co-factors and coenzymes and how are they important?
8. Explain induced fit and lock and key models of enzyme catalyzed reactions.



**FACULTY OF SCIENCE**  
**B.Sc., I-Semester (New-Backlog) Examinations, December-2020**  
**MICROBIOLOGY-1**  
**(Introductory Microbiology)**

**Time: 2 Hours**

**Max. Marks: 80**

**Note:** Answer any **Four** of the following questions.

**4x20=80M**

1. How was microscopic life discovered? Add a note on contributions of Beijernik and Winogradsky.
2. Write on physical methods of Sterilization.
3. Explain the principle and working of Dark field and Phase contrast microscopy. Add a note on its applications.
4. Write on the Differential staining and spore staining.
5. Explain enrichment culturing and pure culture development.
6. Differentiate differential medium and enrichment medium. Discuss various methods for preservation of microbial cultures.
7. How are bacteria and archaea different? Add a note on Rickettsia.
8. Write on the general characters of protozoa and fungi.



**FACULTY OF SCIENCE**  
**B.Sc., I-Semester (Old-Backlog) Examinations, December-2020**  
**MICROBIOLOGY-1**  
**(General Microbiology-I)**

**Time: 2 Hours**

**Max. Marks: 80**

**Note:** Answer any **Four** of the following questions.

**4x20=80M**

1. What is the importance of microbiology and its applications?
2. Explain Koch postulates and their status today. Add a note on contributions of Alexander Fleming.
3. What is micrometry and how are the sizes of microorganisms determined?
4. Write on principle and working of fluorescent microscope. Add a note on its applications.
5. What is Bergey's manual and how is it useful?
6. Describe the general characters of Mycoplasma and Cyanobacteria.
7. Describe in detail the ultra structure of bacterial cell with labelled diagram.
8. Explain the structure and multiplication of Lambda Phage.



FACULTY OF SCIENCE  
**B.Sc., IV- Semester (Backlog) Examinations, Sept./Oct.-2020**  
Microbiology-4  
**(Microbial Genetics & Molecular Biology)**

**Time : 2 Hours**

**Max. Marks: 80**

**Note :** Answer any **Four** questions.

**4x20=80M**

- 1) What are Mendelian laws and how are they important?
- 2) How was DNA proved as genetic material experimentally?  
Add a note on Watson-Crick Model of DNA.
- 3) What are the various physical and chemical mutagens and how do they act?
- 4) Explain the genetic recombination methods in bacteria.
- 5) What are the types of genes and how do they function in living cells?
- 6) Explain the gene regulation taking Lac operon as model.
- 7) How is genetic engineering important in industrial product development?
- 8) What are restriction endonucleases and how are they important?





**FACULTY OF SCIENCE**  
**B.Sc., IV-Semester (Regular) Examinations, December-2020**  
**MICROBIOLOGY-4**  
**(Microbial Genetics & Molecular Biology)**

**Time: 2 Hours**

**Max. Marks: 80**

**Note:** Answer any **Four** of the following questions.

**4x20=80M**

1. Explain the structure of DNA based on Watson and Crick model. Add a note on plasmids.
2. Describe crossing over and linkage for their importance in genetic variations.
3. Explain the genetic recombination in bacteria by transformation and conjugation.
4. Write on various types of DNA damage. Explain how DNA is damaged by radiation and how does it gets repaired?
5. Define Muton, Recon and Cistron. Explain salient features of genetic code.
6. Explain the change in one gene one enzyme to one gene one product hypothesis. Add a note on types of RNA.
7. What is genomic DNA? Explain the cDNA libraries and their importance.
8. Write on restriction endonucleases and ligases. How are they important?



FACULTY OF SCIENCE  
**B.Sc., V- Semester (Backlog) Examinations, Sept./Oct.-2020**  
MICROBIOLOGY-5  
**(Applied Microbiology)**

**Time : 2 Hours**

**Max. Marks : 60**

**Note :** Answer any **Four** from the following essay type questions.

**4x15=60M**

- 1) What are cyanobacteria and how are they important in wetland agriculture?
- 2) What are PGPM and how are they important?
- 3) Write on the principles of plant disease control.
- 4) What is biopesticide? Write on *Bacillus thuringensis* for its importance.
- 5) How is water pollution detrimental to human health?
- 6) Explain the sulphur cycle and the role of microorganisms in it.
- 7) What are the methods used for sewage treatment?
- 8) What are synthetic pesticides and how are they important in soil pollution?



**FACULTY OF SCIENCE**  
**B.Sc., V- Semester (Backlog) Examinations, Sept./Oct.-2020**  
**MICROBIOLOGY-6**  
**(Immunology)**

**Time: 2 Hours**

**Max. Marks: 60**

**Note:** Answer any **Four** from the following essay type questions.

**4x15=60M**

- 1) Draw the typical structure of an antibody and explain its chemical and biological properties.
- 2) What are the different types of antibodies? Write on their properties and significance.
- 3) What are the primary organs of immune system and how are they important?
- 4) What is bone marrow? Explain its importance in immune system.
- 5) Explain the precipitation reaction in Ag-Ab-reactions.
- 6) What is ELISA and how is it important in diagnostic microbiology?
- 7) Write on the importance and production of monoclonal antibodies.
- 8) What is auto-immunity and how is it important?



**FACULTY OF SCIENCE**  
**B.Sc., V- Semester (Backlog) Examinations, Sept./Oct. - 2020**  
**MICROBIOLOGY-6**  
**(Pharmaceutical Microbiology)**

**Time : 2 Hours**

**Max. Marks : 60**

**Note :** Answer any **Four** from the following essay type questions.

**4x15=60M**

- 1) Explain the principles of chemotherapy.
- 2) What is multi drug therapy and how is it important?
- 3) Write on the origin and development of antibiotics for treating diseases.
- 4) Explain the target sites of drug action in pathogenic bacteria.
- 5) Describe the mode of action of polymyxin on bacterial cells.
- 6) Explain the mode of action of an antifungal antibiotic you studied.
- 7) What is MIC? Compare the liquid tube assay and solid agar assay for their importance.
- 8) What is disc diffusion assay and how is it important?



FACULTY OF SCIENCE  
B.Sc., VI- Semester (Regular/Backlog) Examinations, Sept./Oct.-2020  
MICROBIOLOGY-8  
**Food Microbiology**

**Time : 2 Hours**

**Max. Marks : 60**

**Note :** Answer any **FOUR** questions from the following.

**4x15 =60M**

- 1) What is salmonellosis and how does it affect us?
- 2) Explain different types of microorganisms associated with foods and their sources.
- 3) What are edible mushrooms and what is their commercial importance?
- 4) What are different dairy products obtained by fermentation and what is their importance?
- 5) What is food intoxication and what are its consequences?
- 6) What are important food poisoning bacteria in tropical regions and what is their importance?
- 7) Explain different stages of sewage treatment.
- 8) What is coliform test and how is it important in potable water quality?



FACULTY OF SCIENCE  
B.Sc., VI- Semester (Regular-Backlog) Examinations, Sept./Oct.-2020  
MICROBIOLOGY-8  
Industrial Microbiology

**Time : 2 Hours**

**Max. Marks : 60**

**Note :** Answer any **FOUR** questions from the following.

**4x15 =60M**

- 1) Write on the importance of bacteria and yeasts in industrial microbiology.
- 2) Describe different screening and isolation methods of microorganisms.
- 3) Differentiate and write on surface and submerged fermentation processes.
- 4) What is solid state fermentation and how is it important?
- 5) What are the feed stock materials used in fermentation industry?
- 6) Write on downstream processing in biotech industry.
- 7) Explain the production of Vit.B12 in fermentation industry.
- 8) Describe the production of citric acid by microbial fermentation.



FACULTY OF SCIENCE  
**B.Sc., VI- Semester (Regular-Backlog) Examinations, Sept./Oct.-2020**  
MICROBIOLOGY-7  
**Medical Microbiology**

**Time : 2 Hours**

**Max. Marks : 60**

**Note :** Answer any **FOUR** questions from the following.

**4x15 =60M**

- 1) What are the antibacterial substances produced by our body to keep us safe?
- 2) What is normal flora of our body and how is it important?
- 3) What is drug resistance and how is it important in treating diseases?
- 4) What are interferons and how are they important?
- 5) What is gastroenteritis? Write on cholera for its pathogen, diagnosis and control.
- 6) Write on a zoonotic disease you studied for its pathogen, diagnosis and control.
- 7) Write on poliomyelitis for its pathogen, diagnosis and preventive control measures.
- 8) What is malaria? Write on its pathogens, diagnosis and control measures.

