I Semester M.Sc. Microbiology Examination, May 2014
MICROBIOLOGY-PERSPECTIVES AND CLASSIFICATION

Time: 3 Hours
Max. Marks: 80

Instruction: Answer all the Sections.

SECTION – A

Answer any four questions from the following: (4x5=20)

1. Spontaneous generation.
2. Prions.
3. Industrially important microorganisms.
4. Mollicutes.
5. Carolus Linnaeus.
6. Five kingdom classification.

SECTION – B

Answer any three questions from the following: (3x10=30)

7. Who were the pioneering investigators who contributed to the development of the discipline of microbiology?
8. Give an account of the applied branches of microbiology.
9. Write short notes on the following:
   a) Edward Jenner.
   b) Alexander Fleming.

P.T.O.
10. Write short notes on the following:
   a) Archaeobacteria
   b) Nitrifying bacteria.

11. Give a brief account of identification, classification and taxonomy of living organisms.

SECTION - C

Answer any two questions from the following: \(2\times15=30\)

12. Discuss the impact of microbiology in the fields of agriculture, medicine and industry.

13. What were the important contributions of Louis Pasteur? Explain Pasteurization.

14. Write short notes on the following:
   a) Paul Ehlich
   b) Bergey's manual
   c) Firmicutes.

15. Write short notes on the following:
   a) Christian Gram
   b) Four kingdom system
   c) Microbial biotechnology.
I Semester M.Sc. Examination, May 2014
MICROBIOLOGY
Morphology and Ultrastructure of Bacteria (Prokaryotes)

Time: 3 Hours
Max. Marks: 80

Instruction: Answer all the Sections.

SECTION – A

Answer any four questions from the following: (4x5=20)

1. What is periplasmic space?
2. Functions of bacterial cell wall.
4. Bacterial cysts.
5. Lipopolysaccharides.
6. Capsule/Slime layer.

SECTION – B

Answer any three questions from the following: (3x10=30)

7. Explain the structure of the Gram negative bacterial cell wall.
8. What are the different kinds of inclusion bodies in bacteria?
9. Write short notes on the following:
   a) Bacterial plasmids.
   b) Metachromatic granules.
10. Write short notes on the following:
   a) Applications of archaea.
   b) Nuclear material in bacteria.
11. Give an account of structure of bacterial ribosomes.

P.T.O.
SECTION – C

Answer any two questions from the following:

(2×15=30)

12. What are bacterial pigments? Explain the different types of pigments.

13. Write short notes on the following:
   a) Fluid mosaic model.
   b) Heterocysts.
   c) Sex Pili.

14. Discuss the fine structure and function of the bacterial flagella.

15. Explain the detailed structure and functions of bacterial endospores.
I Semester M.Sc. Microbiology Examination, May 2014
BACTERIAL GROWTH AND PHYSIOLOGY

Time: 3 Hours  Max. Marks: 80

Instruction: Answer all the Sections.

SECTION - A

Answer any four questions from the following. (4×5 = 20)

1. What are Chemoorganotrophs? Give examples.
2. What are aerotolerant anaerobes?
3. Lag phase.
4. Turbidostat.
5. Dry weight measurement.
6. Autotrophs.

SECTION - B

Answer any three questions from the following. (3×10 = 30)

7. Describe autotrophic and heterotrophic nutrition of bacteria.
8. Explain the different types of bacterial culture media.
9. Write short notes on the following.
   a) Applications of archaeabacteria
   b) Bacterial growth curve.
10. Write short notes on the following.
    a) Effect of pH on bacterial growth
    b) Fastidious bacteria.
11. Write short notes on the following.
    a) Generation time
    b) Symbiotic bacteria.

P.T.O.
SECTION - C

Answer any two questions from the following.

(2x15=30)

12. What are the different chemical factors that influence bacterial growth?

13. Bacterial hydrolysis of cellulose and hemicellulose.

14. Write short notes on the following.
   a) Measurement of bacterial growth
   b) Defined medium
   c) Trace elements.

15. Write short notes on the following.
   a) Biological factors affecting bacterial growth
   b) Oxygen requirements of bacteria
   c) Agar-agar.
I Semester M.Sc. in Microbiology Examination, May 2014
MICROBIAL TECHNIQUES

Time : 3 Hours
Max. Marks : 80

Instruction: Answer all the Sections.

SECTION – A

Answer any four questions from the following: (4×5=20)

1. Micrometer.
2. Negative staining.
4. Nutrient agar medium.
5. HEPA filters.
6. Psychrophiles.

SECTION – B

Answer any three questions from the following: (3×10=30)

7. Give an account of the general bio-safety precautions to be followed in a microbiology laboratory.
8. What are the different methods for preserving microorganisms?
9. Explain the procedure and principle of Gram staining.
10. Write short notes on the following:
    a) Serial Dilution
    b) Types of pasteurization.
11. Write short notes on the following:
    a) Oxygen requirement of bacteria.
    b) Morphologies of colony margins of bacteria.

P.T.O.
SECTION - C

Answer any two questions from the following:

(2x15=30)

12. Give a detailed account of electron microscopy.

13. Write short notes on the following:
   a) Haemocytometer.
   b) Radiation sterilization.
   c) Cryopreservation.

14. Write short notes on the following:
   a) Effect of temperature on bacterial growth.
   b) Membrane filter technique.
   c) Streak inoculation.

15. Discuss the general constituents of a microbial culture medium.
KARNATAKA STATE OPEN UNIVERSITY
M.Sc. Microbiology - I Semester
Examination May 2015

Course MB 1.1: Microbiology-Perspectives and Classification

Time: 3 Hours

Instruction: Answer all the sections.

Section A

Answer any FOUR questions from the following: 4 × 5 = 20
5. Spontaneous generation.
6. Agriculturally important microorganisms.

Section B

Answer any THREE questions from the following: 3 × 10 = 30
7. Give a detailed account of the five kingdom classification.
8. Discuss the role of microbes in environmental microbiology.
9. Write short notes on the following:
   a) Alexander Fleming.
   b) Binomial nomenclature.
10. Write short notes on the following:
    a) Pasteurization.
    b) Spirochtes.
11. Outline the role of microorganisms in agriculture.

Section C

Answer any TWO questions from the following: 2 × 15 = 30
12. Write an essay on archaeobacteria and their applications.
13. Give an account of importance and scope of microbiology.
14. Write short notes on the following:
    a) Nitrifying bacteria.
    b) Robert Koch.
    c) Prions.
15. Write short notes on the following:
    a) Needham's experiment.
    b) Mollicutes.
    c) Medically important microorganisms.
KARNATAKA STATE OPEN UNIVERSITY
M.Sc. Microbiology - I Semester
Examination May 2015

Course MB 1.2: Morphology and Ultrastructure of Bacteria (Prokaryotes)

Time: 3 Hours

Max. Marks: 80

Instruction: Answer all the sections.

Section A

Answer any FOUR questions from the following:

1. Bacterial plasmids
2. Lipopolysaccharides.
3. Capsule/slime layer.
4. Heterocysts.
5. Wall-less bacteria.
6. Arrangement of flagella.

4 \times 5 = 20

Section B

Answer any THREE questions from the following:

7. Write an essay on bacterial pigments.
8. What are the functions of plasma membrane?
9. Write short notes on the following:
   a) Nuclear material of bacteria.
   b) Metachromatic granules.
10. Write short notes on the following:
    a) Periplasmic space.
    b) 30S subunit of bacterial ribosome.
11. Write short notes on the following:
    a) Process of plasmid transfer
    b) Fimbriae.

3 \times 10 = 30

Section C

Answer any THREE questions from the following:

12. How do you distinguish between gram positive and gram negative cell walls?
13. Write short notes on the following:
    a) Gas vacuoles.
    b) Applications of quinones.
    c) Endospores.
14. Discuss the diversity of bacterial morphology.
15. Explain in detail the fluid mosaic model.

2 \times 15 = 30
KARNATAKA STATE OPEN UNIVERSITY
M.Sc. Microbiology - 1 Semester
Examination May 2015

Course MB 1.4: Microbial Techniques

Time: 3 Hours

Instruction: Answer all the sections.

Section A

Answer any FOUR questions from the following:

1. Autoclave.
2. Sunlight as a sterilization method.
3. HEPA filters.
4. Viable Plate Count.
5. Lyophilization (Freeze-Drying).
6. Confocal microscopy.

4 × 5 = 20

Section B

Answer any THREE questions from the following:

7. Give a brief account of general layout of a microbiology laboratory.
8. Write short notes on the following:
   a) Flagellar Staining.
   b) Chemical sterilants.
9. Explain the procedure and principle of Gram staining.
10. Write short notes on the following:
    a) Serial Dilution.
    b) Cryopreservation.
11. Define pure culture. What are methods of obtaining pure cultures?

3 × 10 = 30

Section C

Answer any TWO questions from the following

12. Give a detailed account of confocal microscopy.
13. Explain different methods of measurement of growth of microorganisms.
14. Write short notes on the following:
    a) Hot air oven.
    b) Thermophiles.
    c) Differential medium.
15. Write short notes on the following:
    a) Haemocytometer.
    b) Types of pasteurization.
    c) Radiation sterilization.

2 × 15 = 30
I Semester M.Sc. Examination, September 2016
MICROBIOLOGY
Microbiology – Perspectives and Classification

Time: 3 Hours
Max. Marks: 80

Instruction: Answer all the Sections.

SECTION – A

Answer any four questions from the following.

2. Fermicutes.
5. What is the significant contribution of Joseph Lister to microbiology?

(4×5=20)

SECTION – B

Answer any three questions from the following.

7. Explain in detail the concept of "Binomial Nomenclature".
8. Discuss the contributions of Louis Pasteur to microbiology.
9. Write short notes on the following:
   a) Penicillin
   b) Koch's Postulates.
10. Write short notes on the following:
    a) Mollicutes
    b) Edward Jenner.
11. Give a detailed account of four kingdom classification.

P.T.O.
SECTION – C

Answer any two questions from the following: (2x15=30)

12. Elaborate on the role of microorganisms in industrial, medical and agricultural fields.

13. Write short notes on the following:
   a) Anton Van Leeuwenhoek.
   b) Spirochetes.
   c) Five kingdom system.

14. Who are the pioneering contributors responsible for development of early microbiology?

15. Write short notes on the following:
   a) Numerical Taxonomy.
   b) Spontaneous Generation.
   c) Applied branches of microbiology.
I Semester M.Sc. Examination, September 2016
MICROBIOLOGY
Morphology and Ultrastructure of Bacteria (Prokaryotes)

Time: 3 Hours
Max. Marks: 80

Instruction: Answer all the Sections.

SECTION – A

Answer any four questions from the following: (4x5=20)

1. Functions of porin proteins.
2. Applications of quinones.
4. Bacterial plasmids.
5. Fimbriae.
6. Parts of the bacterial flagellum.

SECTION – B

Answer any three questions from the following: (3x10=30)

7. Discuss the variation in shape and size (morphology) of bacterial cells.

8. Write short notes on the following:
   a) Plasmid replication process.
   b) Metachromatic granules and their function.

9. Write short notes on the following:
   a) Resting structures in bacteria.
   b) Arrangement of bacterial flagella (types).

10. Write an essay on types and applications of bacterial pigments.

11. Write short notes on the following:
    a) Capsule/slime layer.
    b) Spirochetes.
SECTION – C

Answer any two questions from the following: (2x15=30)

12. What are the differences between the gram positive and gram negative bacterial cell wall?

13. Explain the general account of the bacterial ribosome structure.

14. Write short notes on the following:
   a) Sex Pili.
   b) Gas Vacuoles.
   c) Fluid Mosaic Model.

15. Write short notes on the following:
   a) Inclusion bodies.
   b) Heterocysts.
   c) Bacterial chromosome.
I Semester M.Sc. Examination, September 2016
MICROBIOLOGY
Bacterial Growth and Physiology

Time: 3 Hours
Max. Marks: 80

Instruction: Answer all the Sections.

SECTION – A

Answer any four questions from the following: (4×5=20)

1. What are Microaerophiles?
2. Fastidious bacteria.
3. Differential medium.
4. Membrane filter technique.
5. Effect of temperature on bacterial growth.
6. Heterotrophs.

SECTION – B

Answer any three questions from the following: (3×10=30)

7. What are the general requirements of a bacterial culture medium?
8. Explain in detail the bacterial growth curve.
9. Give an account of Bacterial hydrolysis of proteins.
10. Write short notes on the following:
    a) Chemical factors affecting bacterial growth
    b) Dry weight measurement.
11. Write short notes on the following:
    a) Oxygen requirement of bacterial growth
    b) Vitamins required for bacterial growth.
SECTION – C

Answer any two questions from the following: \(2 \times 15 = 30\)

12. Explain the following with suitable examples:
   a) Synchronous cultures
   b) Batch cultures
   c) Continuous cultures.

13. Write short notes on the following:
   a) Stationery phase
   b) Halophiles
   c) Microscopic count method.

14. What are the important physical factors that influence bacterial growth?

15. Write an essay on bacteria which inhabit extreme environmental conditions.
KARNATAKA STATE OPEN UNIVERSITY
M.Sc. Microbiology - I Semester
Examination May 2015
Course MB 1.4: Microbial Techniques

Time: 3 Hours

Instruction: Answer all the sections.

Max. Marks: 80

Section A

Answer any FOUR questions from the following:  
1. Autoclave.
2. Sunlight as a sterilization method.
3. HEPA filters.
4. Viable Plate Count.
5. Lyophilization (Freeze-Drying).
6. Confocal microscopy.

$4 \times 5 = 20$

Section B

Answer any THREE questions from the following:  
7. Give a brief account of general layout of a microbiology laboratory.
8. Write short notes on the following:
   a) Flagellar Staining.
   b) Chemical sterilents.
9. Explain the procedure and principle of Gram staining.
10. Write short notes on the following:
    a) Serial Dilution.
    b) Cryopreservation.
11. Define pure culture. What are methods of obtaining pure cultures?

$3 \times 10 = 30$

Section C

Answer any TWO questions from the following

12. Give a detailed account of confocal microscopy.
13. Explain different methods of measurement of growth of microorganisms.
14. Write short notes on the following:
    a) Hot air oven.
    b) Thermophiles.
    c) Differential medium.
15. Write short notes on the following:
    a) Haemocytometer.
    b) Types of pasteurization.
    c) Radiation sterilization.

$2 \times 15 = 30$
I Semester M.Sc. Degree Examination, July/August - 2019  
(SLM Scheme) (Course - I)  
MICROBIOLOGY  
Microbiology - Perspectives and Classification  

Time : 3 Hours  
Max. Marks : 80  

Instruction: Answer all the sections.  

SECTION - A  
Answer any Four Questions from the following:  

[4 × 5 = 20]  

Q1) Gram's staining.  

Q2) Numerical Taxonomy.  

Q3) Anton von Leewenhoek.  

Q4) Environmental microbiology.  

Q5) Spontaneous generation.  


SECTION - B  
Answer any THREE questions from the following:  

[3 × 10 = 30]  

Q7) Give an account of contributions of Robert Koch. List Koch's Postulates.  

Q8) Add a note on applications of archaebacteria.  

Q9) Add a note on the basic and applied branches of microbiology.  

Q10) Write short notes on the following:  

   a) Simple microscope.  
   b) Edward Jenner  

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Q11) Write short notes on the following:
   a) Binomial Nomenclature.
   b) Agriculturally important microorganisms.

SECTION - C

Answer any TWO questions from the following: [2 × 15 = 30]

Q12) Explain the concept of four kingdom classification.

Q13) Give a brief account of scope and relevance of microbiology in the field of agriculture.

Q14) Write short notes on the following
   a) Louis Pasteur
   b) Alexander Fleming
   c) Prokaryotic cell

Q15) Discuss how microorganisms influence mankind.

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I Semester M.Sc. Degree Examination, July/August - 2019  
(SLM Scheme) (Course - II)  
MICROBIOLOGY  
Morphology and Ultrastructure of Bacteria Prokaryotes  

Time : 3 Hours  
Max. Marks : 80  

Instruction : Answer all the Sections.  

SECTION - A  
Answer any Four questions from the following :  

\[4 \times 5 = 20\]  

Q1) What are spirochetes? Give examples.  

Q2) Process of plasmid transfer.  

Q3) Inclusion bodies in bacteria.  

Q4) Intrinsic and extrinsic proteins.  

Q5) Sex pili.  

Q6) Lipopolysaccharides.  

SECTION - B  
Answer any Three questions from the following :  

\[3 \times 10 = 30\]  

Q7) Explain the structure and function of capsule in bacteria.  

Q8) Discuss different types and arrangement of flagella.  

Q9) Explain the structure and function of bacterial plasma membrane.
**Q10** Write short notes on the following:
   a) Bacterial chromosome.
   b) 30S subunit of bacterial ribosome.

**Q11** Write short notes on the following:
   a) Exosporas and filaments.
   b) Heterocysts.

**SECTION - C**

Answer any Two questions from the following: [2 ×15 = 30]

**Q12** Discuss in detail the applications of bacterial pigments in various fields.

**Q13** Write short notes on the following:
   a) Fimbriae.
   b) Wall less bacteria.
   c) Morphology of bacteria.

**Q14** Differentiate between gram positive and gram negative cell walls.

**Q15** Write short notes on the following:
   a) Porin proteins.
   b) Gas vacuoles.
   c) Periplasmic space.

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I Semester M.Sc. Degree Examination, July/August - 2019
(SLM Scheme) (Course - III)
MICROBIOLOGY
Bacterial Growth and Physiology

Time : 3 Hours
Max. Marks : 80

Instruction: Answer all the Sections.

SECTION - A

Answer any Four questions from the following: [4 × 5 = 20]

Q1) What are facultative anaerobes? Give examples.

Q2) Trace elements.

Q3) Selective medium.

Q4) Generation time.

Q5) Chemostat.

Q6) Effect of pH on bacterial growth.

SECTION - B

Answer any Three questions from the following: [3 × 10 = 30]

Q7) Categorize bacteria according to their oxygen requirements.

Q8) Write short notes on the following:
   a) Vitamins essential for bacterial growth.
   b) Physical factors affecting bacterial growth.

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Q9) Write short notes on the following:
   a) Chemolithotrophs.
   b) Salt loving bacteria.

Q10) Bacterial hydrolysis of carbohydrates.

Q11) What are the applications of extreme bacteria?

SECTION - C

Answer any Two questions from the following: [2 × 15 = 30]

Q12) Explain different methods used for direct and indirect measurement of bacterial growth.

Q13) Discuss the effect of various biological factors on bacterial growth.

Q14) Write short notes on the following:
   a) Thermophiles.
   b) Stationary phase.
   c) Synchronous growth.

Q15) Write short notes on the following:
   a) Mixotrophs.
   b) Symbiotic bacteria.
   c) Facultative anaerobes.

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I Semester M.Sc. Degree Examination, July/August - 2019
(SLM Scheme) (Course - IV)
MICROBIOLOGY
Microbial Techniques

Time : 3 Hours  Max. Marks : 80
Instruction :  Answer all the Sections.

SECTION - A

Answer any Four questions from the following :  [4 × 5 = 20]

Q1) Laminar air flow.

Q2) Serial dilution.

Q3) Endospore staining.

Q4) Dry heat sterilization.

Q5) Obligate aerobes.

Q6) Electron microscope.

SECTION - B

Answer any Three questions from the following :  [3 × 10 = 30]

Q7) Explain the methods of obtaining pure cultures.

Q8) Write short notes on the following :
   a) Cryopreservation.
   b) Psychrophiles.

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Q9) Explain the effect of temperature on growth of microorganisms.

Q10) Write short notes on the following:
   a) Gram staining.
   b) Enrichment medium.

Q11) Discuss the general constituents of a microbial culture medium.

SECTION - C

Answer any Two questions from the following: [2 ×15 = 30]

Q12) Give an account of different methods of sterilization.

Q13) Explain different types of microscopes.

Q14) Write an essay on maintenance and preservation of microbes.

Q15) Write short notes on the following:
   a) Spread plate technique.
   b) Layout of microbiology laboratory.
   c) Phase contrast microscope.

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