

B. Sc., I Semester Microbiology
NEP- DSC-1P, MBL 101 (2021- 22 onwards)
Practical Internal Examination
Course 1: General Microbiology

Time: 03 Hours

Max. Marks: 25

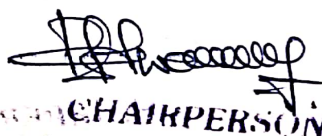
1. Prepare a temporary mount on a clean and dry slide of the given material **A**. Draw a neat and labeled diagram and leave the preparation for evaluation. Write the procedure, principle and observation. Record the result.
06 marks
2X2=04 marks
2. Identify and write short notes on the materials **B** and **C**
3. Class record
15 marks

B. Sc., I Semester Microbiology
NEP- DSC-1P, MBL 101 (2021- 22 onwards)
Scheme of Practical Internal Examination
Course 1: General Microbiology

Time: 03 Hours

Max. Marks: 25

1. Prepare a temporary mount on a clean and dry slide of the given material **A**. Draw a neat and labeled diagram and leave the preparation for evaluation. Write the procedure, principle and observation. Record the result.
06 marks
[Preparation- 2 marks; Principle- 1 mark; Procedure- 1 mark; Observation (labeled diagram)-1 mark; Result- 1 mark]
(Simple positive staining, Negative staining, Staining of Algae / Fungi / Gram's staining / Acid-fast staining / Endospore staining / Flagella staining / Capsule staining / Demonstration of bacterial motility)
2. Identify and write short notes on the materials **B** and **C**
4X2=04 marks
(Identification- 1 mark; Short note- 1 mark)
[Different parts of a Compound microscope; Stains and Reagents (Methylene blue / Nigrosin / Cotton blue / Safranin / Crystal violet / Carbol fuchsin / Malachite green / Gram's iodine); Microbiological tools (Different types of Pipettes / Bunsen burner / Inoculation loop / Spreader); Instruments (Autoclave / Hot air oven / Incubator / pH meter / Spectrophotometer / Colorimeter / Vortex mixer / Magnetic stirrer / Laminar air flow / Colony counter / Membrane filtration unit); Culture preservation techniques (Slant culture / Mineral oil overlay)]
3. Class Record
15 marks


CHAIRPERSON

Board of Studies in Microbiology
Kuvempu University Jnana Sahyadn
Shankarghatta-577 451.



B.Sc., I Semester Microbiology
NEP- DSC-1P, MBL 101 (2021- 22 onwards)
Practical External Examination
Course 1: General Microbiology

Time: 03 Hours

Max. Marks: 25

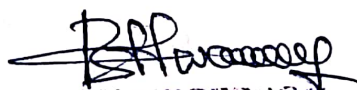
1. Prepare a temporary mount on a clean and dry slide of the given material A. Draw a neat and labeled diagram and leave the preparation for evaluation. Write the procedure, principle and observation. Record the result. 08 marks
2. Perform/ demonstrate the experiment B _____ with procedure and principles. Record the result. 06 marks
3. Identify and write short notes on the materials C, D and E 3X2=06 marks
4. Viva-voce 05 marks

B.Sc., I Semester Microbiology
NEP-DSC-1P, MBL 101 (2021-22 onwards)
Scheme of Microbiology Practical External Examination
Course 1: General Microbiology

Time: 03 Hours

Max. Marks: 25

1. Prepare a temporary mount on a clean and dry slide of the given material A. Draw a neat and labeled diagram and leave the preparation for evaluation. Write the procedure, principle and observation. Record the result. 08 marks
[Preparation- 4 marks; Principle- 1; Procedure- 1 mark; Observation (labeled diagram)- 1 mark; Result- 1 mark]
(Simple positive staining / Negative staining / Gram's staining / Acid-fast staining / Endospore staining / Flagella staining / Capsule staining)
2. Perform / demonstrate the experiment B _____ with procedure and principles. Record the result. 06 marks
[Preparation- 2 marks; Principle- 1 mark; Procedure- 1 mark; Observation (labeled diagram)-1 mark; Result- 1 mark]
(Staining of algae / Staining of fungi / Demonstration of bacterial motility)
3. Identify and write short notes on the materials C, D and E 3X2=06 marks
(Identification- 1 mark; Short note- 1 mark)
[Different parts of compound microscope; Stains and Reagents (Methylene blue / Nigrosin / Cotton blue / Safranin / Crystal violet / Carbol fuchsin / Malachite green / Grams iodine); Microbiological tools (Different types of Pipettes / Bunsen burner / Inoculation loop / Spreader); Instruments (Autoclave / Hot air oven / Incubator / pH meter / Spectrophotometer / Colorimeter / Vortex mixer / Magnetic stirrer / Laminar air flow / Colony counter / Membrane filtration unit); Methods of preservation of cultures (Slant culture / Mineral oil overlay). 05 marks
4. Viva-voce


CHAIRPERSON

Board of Studies in Microbiology
Kuvempu University, Jnana Sanyadri
Shankarghatta-577 451



B.Sc., II Semester Microbiology
NEP-DSC-2P, MBL 102 (2021-2022 onwards)
Practical Internal Examination
Course 1: Microbial Biochemistry and Physiology

Time: 03 Hours

Max Marks: 25

1. Perform the experiment A. Write the principle and procedure. Plot the graph if necessary. Record the result. 06 Marks
2. Identify and write short notes on the materials B and C 2X2=04 Marks
3. Class Record 15 Marks

B.Sc., II Semester Microbiology
NEP-DSC-2P, MBL 102 (2021-2022 onwards)
Practical Internal Examination
Course 1: Microbial Biochemistry and Physiology

Time: 03 Hours

Max Marks: 25

1. Perform the experiment A. Write the principle and procedure. Plot the graph if necessary. Record the result. 06 Marks
[Performance-2 marks; Principle-1; Procedure-1 mark; Labeled graph-1 mark; Result- 1 mark]
(Estimation of sugar by DNS method/ Estimation of protein by Biuret method/ Estimation of protein by Lowry's method/ Determination of Iodine values of lipids/ saponification values of lipids/ Preparation of Normal solutions/ Preparation of Molar solutions/ Preparation of buffer solutions/ Identification of carbohydrates/ Identification of proteins/ Identification of amino acids/ Identification of fatty acids/ Effect of pH on microbial growth/ Effect of salt concentration on microbial growth/ Effect of temperature on microbial growth).
2. Identify and write short notes on the materials B and C 2X2=04 Marks
[Identification- 1 mark; short note- 1mark]
(Qualitative tests for carbohydrates/ proteins/ amino acids/ lipids, / Effect of pH on microbial growth/ Effect of salt concentration on microbial growth/ Effect of temperature on microbial growth, Growth curve chart/ Chlorophyll structure/Haemoglobin/Cytochrome/Membrane transport charts).
3. Class Record 15 Marks


CHAIRPERSON

Board of Studies in Microbiology
Kuvempu University, Jnana Sanyadri
Shankarghatta-577 451.

B.Sc., II Semester Microbiology
NEP-DSC-2P, MBL 102 (2021-2022 onwards)
Practical External Examination
Course 1: Microbial Biochemistry and Physiology

Time: 03 Hours

Max. Marks: 25

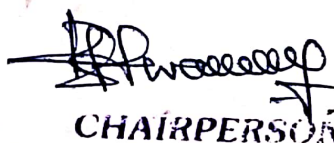
1. Perform the experiment A. Write the principle and procedure. Plot the graph if necessary. Record the result. 08 Marks
2. Perform/ demonstrate the experiment B _____ with principle and procedure. Record the results. 06 Marks
3. Identify and write short notes on the materials C, D and E 3X2 =06 Marks
4. Viva-voce 05 Marks

B.Sc., II Semester Microbiology
NEP-DSC-2P, MBL 102 (2021-2022 onwards)
Scheme of Practical External Examination
Course 1: Microbial Biochemistry and Physiology

Time: 03 Hours

Max. Marks: 25

1. Perform the experiment A. Write the principle and procedure and plot the graph if necessary. Record the result. 08 Marks
[Performance-3 marks; Principle-1; Procedure-1 mark; Labeled graph-1 mark; Result-2 mark].
(Estimation of sugar by DNS method/ Estimation of protein by Biuret method/ Estimation of protein by Lowry's method/ Determination of Iodine values of lipids/ saponification values of lipids).
2. Perform/ demonstrate the experiment B _____ with principle and procedure. Record the results. 06 Marks
[Preparation/ Performance-3 marks; Principle-1; Procedure-1 mark; Result-1 mark]
(Preparation of Normal/ Preparation of Molar solutions/ Preparation of Molar solutions/ Identification of carbohydrates/ Identification of proteins/ Identification of amino acids/ Identification of fatty acids/ Effect of pH on microbial growth/ Effect of salt concentration on microbial growth/ Effect of temperature on microbial growth).
3. Identify and write short notes on the materials C, D and E 3X2 =06 Marks
[Identification- 1 mark; short note- 1mark]
(Qualitative tests for carbohydrates/ proteins/ amino acids/ lipids, / Effect of pH on microbial growth/ Effect of salt concentration on microbial growth/ Effect of temperature on microbial growth, Growth curve chart/ Chlorophyll structure/Haemoglobin/Cytochrome/Membrane transport charts).
4. Viva-voce 05 Marks


CHAIRPERSON

Board of Studies in Microbiology
Kuvempu University, Jnana Sanyadri
Shankarghatta-577 451.



B.Sc., III Semester Microbiology
NEP-DSC-3P, MBL 103 (2022-2023 onwards)
Practical Internal Examination
Course 1: Microbial Diversity

Time: 03 Hours

Max Marks: 25


1. Perform/ demonstrate the experiment A _____ with principle and procedure. Record the results. 06 Marks
2. Identify the micro slides/ photographs/ models B and C giving reasons with labeled diagrams. 2X2 =04 Marks
3. Class Record 15 Marks

B.Sc., III Semester Microbiology
NEP-DSC-3P, MBL 103 (2022-2023 onwards)
Scheme of Practical Internal Examination
Course 1: Microbial Diversity

Time: 03 Hours

Max Marks: 25

1. Perform/ demonstrate the experiment A _____ with principle and procedure. Record the results. 06 Marks
[Preparation/ Performance-3 marks; Principle-1 ; Procedure-1 mark; Result-1 mark]
(Measurement of microbial cell size by micrometry/ Isolation of bacteria from soil/ Isolation of bacteria from water/ Isolation of fungi from soil/ Isolation of fungi from water).
2. Identify the micro slides/ photographs/ models B and C giving reasons with labeled diagrams. 2X2 =04 Marks
[Identification- ½ mark; Reasons- 1 mark; Labelled diagram ½ marks]
(microslides/ photographs/ models from bacteria, cyanobacteria, algae, fungi, protozoa and viruses).
3. Class Record 15 Marks


CHAIRPERSON
Board of Studies in Microbiology
Kuvempu University, Jnana Sanyadri
Shankarghatta-577 451.



B.Sc., III Semester Microbiology
NEP-DSC-3P, MBL 103 (2022-2023 onwards)
Practical External Examination
Course 1: Microbial Diversity

Time: 03 Hours

Max. Marks: 25

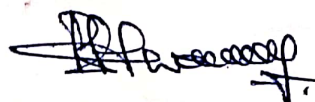
1. Perform/ demonstrate the experiment A _____ with principle and procedure. Record the results. 08 Marks
2. Make a temporary preparation of the given materials B, C and D. Identify the same with labeled diagram and reasons. 3X2=06 Marks
3. Identify the micro slides/ photographs/ models E, F and G giving reasons with labeled diagrams. 3X2=06 Marks
4. Viva-voce 05 Marks

B.Sc., III Semester Microbiology
NEP-DSC-3P, MBL 103 (2022-2023 onwards)
Scheme of Practical External Examination
Course 1: Microbial Diversity

Time: 03 Hours

Max. Marks: 25

1. Perform/ demonstrate the experiment A _____ with principle and procedure. Record the results. 08 Marks
[Preparation/ Performance-5 marks; Principle-1 mark; Procedure-1 mark; Result-1 mark]
(Measurement of microbial cell size by micrometry/ Isolation of bacteria from soil/ Isolation of bacteria from water/ Isolation of fungi from soil/ Isolation of fungi from water)
2. Make a temporary preparation of the given materials B, C and D. Identify the same with labeled diagram and reasons. 3X2=06 Marks.
[Identification- ½ mark; Reasons -1 mark; Labeled diagram- ½ mark]
(One specimen from bacteria, cyanobacteria, algae, fungi and protozoa mentioned in the syllabus).
3. Identify the micro slides/ photographs/ models E, F and G giving reasons with labeled diagrams. 3X2=06 Marks
[Identification- ½ mark; Reasons- 1 mark; Labelled diagram ½ marks]
(microslides/ photographs/ models from bacteria, cyanobacteria, algae, fungi, protozoa and viruses mentioned in the syllabus).
4. Viva-voce 05 Marks



CHAIRPERSON
Board of Studies in Microbiology
Kuvempu University, Jnana Sanyadri
Shankarghatta-577 451.

B.Sc., IV Semester Microbiology
NEP-DSC-4P, MBL 104 (2022-2023 onwards)
Practical Internal Examination
Course 1: Microbial Enzymology and Metabolism

Time: 03 Hours

Max Mars: 25

1. Perform/ demonstrate the experiment A_____with principle and procedure.
Record the results. 06 Marks
2. Identify the micro slides/ photographs/ models B and C giving reasons with
labeled diagrams. 2X2=04 Marks
3. Class Record 15 Marks

B.Sc., IV Semester Microbiology
NEP-DSC-4P, MBL 104 (2022-2023 onwards)
Scheme of Practical Internal Examination
Course 1: Microbial Enzymology and Metabolism

Time: 03 Hours

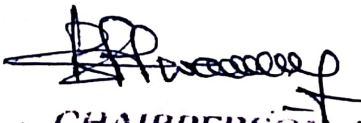
Max Marks: 25

1. Perform/ demonstrate the experiment A_____with principle and procedure.
Record the results. 06 Marks
[Preparation/ Performance-3 marks; Principle-1; Procedure-1 mark; Result-1 mark]
Separation of amino acids by paper chromatography / microscopic examination of
root nodules/ screening of fungi for cellulose and pectin degradation/ screening of
fungi for invertase / enzyme immobilization by alginate method / gelatin
hydrolysis/Starch hydrolysis/Ammonification.
2. Identify the micro slides/ photographs/ models B and C giving reasons with
labeled diagrams 2X2=04 Marks
[Identification- ½ mark; Reasons- 1 mark; Labeled diagram ½ marks]

Study of photographs/ charts: chemotrophy- hydrogen oxidation, sulphur oxidation,
Iron oxidation, nitrogen oxidation, biological nitrogen fixation, ammonia
assimilation, ribozymes, abzymes, lock and key model, enzyme inhibition-
competitive, non- competitive and uncompetitive/ enzyme regulation- allosteric,
feedback inhibition

3. Class Record.

15 marks


CHAIRPERSON
Board of Studies in Microbiology
Kuvempu University, Jnana Sanyadri
Shankarghatta-577 451.



B.Sc., IV Semester Microbiology
NEP-DSC-4P, MBL 104 (2022-2023 onwards)
Practical External Examination
Course 1: Microbial Enzymology and Metabolism

Time: 03 Hours

Max. Marks: 25

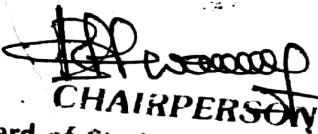
1. Perform/ demonstrate the experiment A _____ with principle and procedure.
Record the results. 08Marks
2. Make a temporary preparation of the given materials B, Identify the same with
labeled diagram and reasons. 06 Marks
3. Identify the micro slides/ photographs/ models C, D and E giving reasons
with labeled diagrams. 3X2=06Marks
4. Viva-voce 05 Marks

B.Sc., IV Semester Microbiology
NEP-DSC-4P, MBL 104 (2022-2023 onwards)
Scheme of Practical External Examination
Course 1: Microbial Enzymology and Metabolism

Time: 03 Hours

Max. Marks: 25

1. Perform/ demonstrate the experiment A _____ with principle and procedure.
Record the results. 08 Marks
[Preparation/ Performance- 5 marks; Principle-1 mark; Procedure-1 mark; Result-1 mark]
Separation of amino acids by paper chromatography / microscopic examination of root nodule / enzyme immobilization by alginate method.
- 2.. Make a temporary preparation of the given materials B, Identify the same with
labeled diagram and reasons. 06 Marks
[Identification- ½ marks; Reasons -1 mark, Labeled diagram- ½ mark]
Screening of fungi for cellulose and pectin degradation/ screening of fungi for invertase / gelatin hydrolysis/ starch hydrolysis, Ammonification.
3. Identify the micro slides/ photographs/ models C, D and E giving reasons with
labeled diagrams 3X2=06 Marks
[Identification- ½ mark; Reasons- 1 mark; Labeled diagram ½ marks]
Study of photographs/ charts: chemotrophy- hydrogen oxidation, sulfur oxidation, Iron oxidation, nitrogen oxidation, biological nitrogen fixation, ammonia assimilation, ribozymes, abzymes, lock and key model, enzyme inhibition- competitive, non- competitive and uncompetitive/ enzyme regulation- allosteric feedback inhibition
4. Viva-voce 05 Marks


CHAIRPERSON
Board of Studies in Microbiology
Kuvempu University, Jnana Sarayada