KARNATAKA STATE OPEN UNIVERSITY
M.Sc., II Semester Examination- February 2015
MICROBIOLOGY
Course MB 2.1: Mycology and Phycology (Eukaryotes)

Time: 3 Hours
Max. Marks: 80

Instruction: Answer all the sections.

Section A

Answer any FOUR questions from the following:
1. Lysosomes.
2. Formation of dikaryons.
3. Fungal sex hormones.
4. Thallus organization in algae.
5. Structure of diatoms.
6. Algal pharming.

$$4 \times 5 = 20$$

Section B

Answer any THREE questions from the following:
7. Describe the structure of the plasma membrane.
8. Give an account of fungal nutrition.
9. Write briefly on different kinds of vegetative reproduction in fungi.
10. Write short notes on the following:
    a) General characteristics of ascomycotina.
    b) Morphological types of lichens.
11. Explain the mechanism of parasexuality in fungi.

$$3 \times 10 = 30$$

Section C

Answer any TWO questions from the following

12. Give an account on the general characteristics of eukaryotic microorganisms.
13. Write short notes on the following:
    a) Mycorrhizae.
    b) General characteristics of algae.
    c) Applications of Phaeophyceae.
14. Write short notes on the following:
    a) Economic importance of fungi.
    b) General characteristics of Chlorophyceae.
    c) Penicillium.
15. Explain in detail different mechanisms of spore liberation in fungi

$$2 \times 15 = 30$$
KARNATAKA STATE OPEN UNIVERSITY
M.Sc. II Semester Examination- February 2015
MICROBIOLOGY
Course MB 2.2: Virology

Time: 3 Hours
Max. Marks: 80

Instruction: Answer all the sections.

Section A
Answer any FOUR questions from the following: 4 × 5 = 20
1. DNA viruses.
2. Bacteriophages.
3. Phage therapy applications.
4. Virusoids/satellites.
5. Enzyme-linked immunosorbent assay (ELISA).

Section B
Answer any THREE questions from the following: 3 × 10 = 30
7. What are viruses? How they are different from other cellular organisms?
8. Write short notes on the following:
   a) Diseases caused by Prions.
   b) Cultivation of viruses.
9. Write short notes on the following:
   a) Lysogenic cycle of Bacteriophage.
   b) Treatment strategies for viral infections.
10. Describe the structure of T4 Bacteriophage.
11. Write short notes on the following:
    a) Viral plaque assay.
    b) Icosahedral viruses.

Section C
Answer any TWO questions from the following: 2 × 15 = 30
12. Explain briefly the ICTV method of viral classification
13. Enlist serious viral diseases of live stock, causative virus and possible remedy.
14. Write short notes on the following:
   a) Structure of HIV
   b) Phage typing
   c) Immunoprecipitation
15. Write short notes on the following:
   a) Immunological methods of virus assays.
   b) Phage control methods in dairy industry.
   c) Progressive or escape hypothesis.
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MICROBIOLOGY
Course MB 2.3: Microbial Metabolism and Physiology

Time: 3 Hours
Max. Marks: 80

Instruction: Answer all the sections.

Section A
Answer any FOUR questions from the following

1. Induced Fit Model.
2. Vitamin coenzymes.
5. Factors that affect enzyme activity.

4 \times 5 = 20

Section B
Answer any THREE questions from the following

7. Write an essay on the Lac operon and its control elements.
8. Briefly explain the Entner-Doudoroff pathway.
9. Write short notes on the following:
   a) Effect of temperature on enzyme activity.
   b) Fermentative metabolism
10. Write short notes on the following:
    a) Specificity of enzymes.
    b) Enzyme nomenclature.
11. Write short notes on the following:
    a) Central dogma.
    b) Phycobiliproteins

3 \times 10 = 30

Section C
Answer any TWO questions from the following:

12. Describe the glyoxylate cycle pathway.

14. Write short notes on the following:
    a) Properties of enzymes.
    b) Applications of microbial enzymes.
    c) tRNA.
15. Describe the process of Glycolysis.

2 \times 15 = 30
KARNATAKA STATE OPEN UNIVERSITY
M.Sc. II Semester Examination-February 2015
MICROBIOLOGY
Course MB 2.4: Analytical Techniques in Microbiology

Time: 3 Hours

Max. Marks: 80

Instruction: Answer all the sections.

Section A

Answer any FOUR questions from the following:

1. Obligate anaerobes.
3. Polymerase Chain Reaction.
4. Bioautography.
5. FASTA.
6. Histogram.

4 × 5 = 20

Section B

Answer any THREE questions from the following:

7. Define bioinformatics and list its applications.
8. Describe the use of microscope for food analysis.
10. Write short notes on the following:
    a) NCBI.
    b) Standard error.
11. Write short notes on the following:
    a) Phylogenetic tree.
    b) Poisson distribution.

3 × 10 = 30

Section C

Answer any TWO questions from the following:

12. Explain in detail different chemical methods of water analysis.
13. Write short notes on the following:
    a) Microarray.
    b) Types of databases.
    c) Pie chart.
14. Write short notes on the following:
    a) Biosensors.
    b) Applications of mass spectroscopy.
    c) GenBank.
15. Explain the working model of HPLC.

2 × 15 = 30