PRS/KS/24/1067

Bachelor of Science (B.Sc.) Semester—II (New) Examination
MICROBIOLOGY – Microbial Diversity
Optional Paper—I

Time : Three Hours] [Maximum Marks : 50

N.B. :— (1) All questions are compulsory and carry equal marks.
(2) Draw diagrams wherever necessary.

1. Describe general characteristics of Mycoplasma and Chlamydia. 10

OR

Discuss various characteristics of Methanogenic bacteria and their importance. 10

2. Describe sexual mode of reproduction in fungi. 10

OR

Give general characteristics of Algae and their industrial uses. 10

3. Write short notes on :

(a) Discovery of viruses 2½

(b) Icosahedral symmetry in viruses 2½

(c) Cytopathic effect 2½

(d) Lysogenic cycle. 2½

OR

(e) Helical symmetry in viruses. 2½

(f) LHT classification of viruses. 2½

(g) Chick embryo method for virus cultivation. 2½

(h) Outline of lytic cycle. 2½

4. (a) Write a note on Luminescent bacteria. 5

(b) Explain mutualism with example. 5

OR

(c) Give an account of Rumen bacteria. 5

(d) Write a note on antagonism with example. 5

5. Solve any **ten** : 1×10=10

(i) What is heterocyst ?

(ii) What is geosmin ?

(iii) Who discovered rickettsia ?

(iv) What is sporangium ?

(v) Name any two asexual spore of fungi.

(vi) Name the disease caused by Entamoeba histolytica.

(vii) Give one example of each SS RNA and ds RNA virus.

(viii) What is virion ?

(ix) Give an example of virus having complex symmetry.

(x) Define syntrophism.

(xi) What is synergism ?

(xii) What is Mycobiont (In Lichen) ?

NRT/KS/19/2057

Bachelor of Science (B.Sc.) Semester–II Examination

MICROBIOLOGY

(Microbial Physiology)

Optional Paper—1

Time : Three Hours] [Maximum Marks : 50

N.B. :— (1) **All** questions are compulsory and carry equal marks.

(2) Draw neat and labelled diagrams wherever necessary.

1. Classify the microorganisms on the basis of nutritional requirements. 10

OR

Describe in detail selective, enrichment and enriched medium with suitable examples. 10

2. Explain in detail bacterial growth curve. 10

OR

(a) Classify the microorganisms on the basis of Oxygen requirement. 5

(b) Classify the Micro—organism of the basis of pH requirements. 5

3. (a) Explain principle and working of autoclave. 5

(b) Explain the use of U.V. rays as means of microbial control. 5

OR

(c) Explain membrane filter technique. 5

(d) Describe the characteristics of an ideal disinfectant. 5

4. (a) Explain oligodynamic effect. 2½

(b) In controlling microbial growth why 70% alcohol is more effective ? 2½

(c) Write a note on gasseous sterilization. 2½

(d) Write in brief on factors influencing antibiotic activity. 2½

OR

(e) Give the mechanism of cell injury to cytoplasmic membrane. 2½

(f) Explain how quaternary ammonium compounds act as anti-microbial agent. 2½

(g) Explain mode of action of chlorine as anti-microbial agent. 2½

(h) How surface active agent controls the microbes ? 2½

5. Solve any **ten** questions :

(a) Give the chemical composition of nutrient agar. 1

(b) What is diauxic growth ? 1

(c) What is an axenic culture ? 1

(d) Give any two examples of mesophiles. 1

(e) Define Psychrophiles. 1

(f) In continuous culture the bacterial cells are maintained in which phase of growth ? 1

(g) What is HEPA filter ? 1

(h) Define incineration. 1

(i) What is the difference between disinfectant and sanitizer ? 1

(j) Give any two examples of aldehydes as agents for microbial control. 1

(k) Define phenol coefficient. 1

(l) Give the example of antibiotic which act on the cell wall of bacteria. 1

Bachelor of Science (B.Sc.) Semester—II Examination

MICROBIOLOGY (Microbial Physiology)

Optional Paper—1

Time : Three Hours] [Maximum Marks : 50

N.B. :— (1) **All** questions are compulsory and carry equal marks.

(2) Draw diagrams and give examples wherever necessary.

1. (a) Classify the microorganisms on the basis of carbon and energy sources. 5

(b) Describe synthetic and non-synthetic media with suitable examples. 5

OR

(c) Discuss selective and differential media with suitable examples. 5

(d) Explain enriched and enrichment medium with suitable examples. 5

2. Define continuous culture and describe any two methods to obtain it. 10

OR

Describe various phases of bacterial growth curve in detail. 10

3. Describe the use of radiation as microbial control agent. 10

OR

Describe various methods of moist heat to control microorganisms. 10

4. (a) Why 70% alcohol is more effective than absolute alcohol in controlling microorganisms ? 2½

(b) Write short note on phenolic compounds as antimicrobial agents. 2½

(c) Explain mode of action of chlorine on microorganisms. 2½

(d) Explain mode of action of formaldehyde on microorganisms. 2½

OR

(e) Describe action of heavy metals on microorganisms. 2½

(f) What is antimetabolite ? Explain its action in controlling microorganisms. 2½

(g) Write a short note on chemotherapeutic agents affecting cell wall of bacteria. 2½

(h) Explain action of Quaternary ammonium compounds as antimicrobial agents. 2½

5. Solve any **TEN** :

(i) What is diauxic growth ?

(ii) What are trace elements ?

(iii) What is axenic culture ?

(iv) What are mesophiles ?

(v) Name any two methods of bacterial reproduction.

(vi) What are microaerophilic organisms ?

(vii) Define Plasmolysis.

(viii) What are 'HEPA' filters ?

(ix) Define microbicidal agents.

(x) Define phenol coefficient.

(xi) Give two examples of surface active agents.

(xii) Name any two factors influencing antibiotic activity. 10×1