

Time Allotted : 3 hrs

Figures out of the right margin indicate full marks.

Candidates are required to answer Group A and any 5 (five) from Group B to E, taking at least one from each group.

Candidates are required to give answer in their own words as far as practicable.

Group - A

(Multiple Choice Type Questions)

10 x 1=10

1. Choose the correct alternatives for the following:

- 7. (a) Dr
- ph
- (b) De
- ca
- ex
- N
- (c) H
- 8. (a) D
- (b) D
- (c) H
- m
- D
- 9. (a) W
- w
- (b) W
- no
- (c) W
- qu
- (d) W
- pr
- sp
- 10. (a) W
- fr
- (b) D
- S
- ar
- 11. (a) W
- pr
- ba
- (b) W
- w
- (c) W
- it

- (i) A family tree constructed during the study of phylogenetic classification is a
(a) Dendogram (b) Histogram (c) Hologram (d) Cladogram.
- (ii) The antibacterial agent Rifampicin is isolated from
(a) Sreptomycyes venezuale (b) Sreptomycyes griseus
(c) Steptomycyes lincoinesis (d) Streptomycyes mediterrani.
- (iii) Cold loving microorganisms are commonly called
(a) Psychrophiles (b) Mesophiles
(c) Hallophiles (d) Barophiles.
- (iv) Media used to suppress unwanted microbes and encourage desired microbes are known as:
(a) Selective media (b) Differential media
(c) Complex media (d) None of these.
- (v) The following substances are used in Gram staining except
(a) Iodine (b) Crystal violet
(c) Alcohol (d) Congo red.
- (vi) Mycorrhiza indicate symbiosis between:
(a) Fungi and yeast (b) algae and fungi
(c) Plant and fungi (d) Fungi and fungi.
- (vii) Heat resistance of bacterial endospore is due to:
(a) Protein coat (b) dipicolinic acid
(c) Peptidoglycan (d) small size.
- (viii) Leghaemoglobin mainly protects the enzyme
(a) Nitrogenase (b) Catalase
(c) Peroxidase (d) None of these.

(ix) The cofactor required for Nitrogen Fixation is

- (a) Co
- (b) Ni
- (c) Mo
- (d) None of these

(x) D-amino acids are present in Bacterial

- (a) Protein
- (b) Cell membrane
- (c) Cell wall
- (d) Flagellum.

Group - B

2.(a) How many types of asexual spores are produced by fungi?

(b) Discuss different types of sexual reproduction found in fungi.

3.(a) Name different chemical compounds present in bacterial cell wall?

(b) How do cell walls of Gram-Positive and Gram-negative bacteria differ?

(c) Name one Gram-Positive one Gram-negative and one acid fast bacteria?

5 + 5 +

Group - C

4.(a) What is pure culture ?

(b) Explain two physical controlling agents with their mode of antibacterial action

(c) Explain how anaerobic bacteria can be grown in the laboratory?

2 + 6 +

5.(a) Define chemolithotroph.

(b) What is oligodynamic action?

(c) Write notes on Chromatic aberration in light microscopy.

(d) Discuss the effect of oxygen concentration on bacterial growth.

2 + 2 + 4 +

Group - D

6.(a) What types of bacteria use the phosphoketolase pathway? Explain briefly the pathway.

(b) Give example of one purple sulfur and one green sulfur bacteria.

(3 + 7) + 2

(a) Schematically explain the mechanism of nitrogen fixation.

(b) What is heterocysts?

(c) What is Pasteur effect ?

7 + 3 + 2 = 12

Group - E

(a) What are actinomycetes?

(b) Briefly explain one waterborne disease caused by bacteria.

(c) What is rhizosphere?

(d) Explain methyl red test.

3 + 3 + 3 + 3 = 12

(a) Briefly mention the different interactions present between soil microbes.

(b) What are alleopathic substances?

(c) Name two air borne diseases and mention their causative agent.

(d) What is VAM? What is the function of VAM to increase soil fertility?

5 + 2 + 2 + 3 = 12