

MICROBIOLOGY
(BIOT 2104)

Time Allotted : 3 hrs

Full Marks : 70

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)

1. Choose the correct alternative for the following: **10 × 1 = 10**
- (i) Heterocysts mainly protect the enzyme
(a) Nitrogenase (b) Catalase
(c) Peroxidase, (d) None of these
- (ii) Obligate aerobic microbes grow
(a) In presence of oxygen (b) In absence of oxygen
(c) Both in presence and absence of oxygen (d) None of these
- (iii) Which of the following organisms belongs to archaebacteria?
(a) Nitrosomona (b) Streptococcus
(c) Mycoplasma (d) Thermoplasma
- (iv) The cofactor required for Nitrogen Fixation is
(a) Co (b) Ni
(c) Mo (d) None of these
- (v) Which is sequenced during the study of phylogenetic classification
(a) mRNA (b) tRNA
(c) rRNA (d) DNA
- (vi) Some species of bacteria form chains or trichomes that are enclosed by a hollow tube known as
(a) Sheath (b) Slime
(c) Prosthecae (d) Stalk
- (vii) Surface sterilization mainly occurs in presence of
(a) X-ray (b) UV-ray
(c) Gamma ray (d) None of these

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- (viii) Lipoprotein is present in
(a) Gram positive (b) Gram negative
(c) Acid fast Bacteria (d) Yeast
- (ix) Mycology is the study of
(a) Fungi (b) Bacteria
(c) Algae (d) Virus
- (x) Coenocytic Hyphae have
(a) No septa (b) Septate with uninucleate cells
(c) Septate with multinucleate cells (d) None of these

Group - B

2. (a) Draw and explain the structure of *Rhizopus stolonifer*.
(b) What do you mean by spheroplasts?
(c) Describe the lysogenic cycle of bacterial replication. 5 + 2 + 5 = 12
3. (a) Write notes on Whittaker classification.
(b) Name the different pigments present in algae.
(c) Write notes on Brown algae. 6 + 2 + 4 = 12

Group - C

4. (a) Define enriched media with example.
(b) Write three chemical sterilizing agents with their mode of action.
(c) What is the difference between antibiotic and antiseptic?
(d) What is axenic culture? 3 + 5 + 3 + 1 = 12
5. (a) What is the working principle of Transmission Electron Microscope (TEM)?
(b) What are the differences between an inverted microscope and an upright microscope? 8 + 4 = 12

Group - D

6. (a) Discuss four different phases of bacterial growth curve.
(b) What is mixed acid fermentation?

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(c) Write notes on cyclic photophosphorylation.

5 + 3 + 4 = 12

7. (a) Discuss the mode of protection of nitrogenase of non-symbiotic N₂ fixing bacteria.

(b) How sulphate is participated in dissimilatory sulphate reduction?

(c) Define anoxygenic photosynthesis.

4 + 4 + 4 = 12

Group - E

8. (a) Schematically describe the process of nitrogen cycle and mention the role of bacteria in it.

(b) Name two different water borne diseases with their causative agents.

(c) What is IMViC test?

5 + 2 + 5 = 12

9. (a) What are phosphate solubilising fungi and why are they important?

(b) Define Lichen.

(c) What is indole production test?

4 + 4 + 4 = 12

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BT	https://classroom.google.com/c/MjQyMDQzMjIzNTg2/a/Mjg3MDQ4MTkxNTE4/details