

NOTE: * All questions are compulsory.
* Draw diagrams wherever necessary.

- Q.1.** Name the following (ANY TWO) (2)
- (A)
1. Macroelement required by microorganisms for their growth.
 2. Energy source of photolithoautotrophs.
 3. Example of a selective medium.
 4. Energy source of chemoorganoheterotrophs.
- (B) Fill in the blanks (ANY TWO) (2)
1. Rock eaters are also called as _____.
 2. Calcium is present in _____ of a bacterial cell that helps in heat resistance.
 3. Organisms which tolerate high temperatures more than 55°C are called _____.
 4. _____ such as chlorine and Iodine are used as antimicrobial agents.
- (C) Define (ANY ONE): (1)
1. Growth factors.
 2. Antimicrobial activity.
- (D) Answer the following (ANY TWO): (10)
1. Different methods of heat can be used for sterilization. Justify.
 2. Describe the methods used for cultivation of anaerobic bacteria.
 3. What is a culture medium? Explain complex and defined media.
 4. Explain sterilization of media using filtration.
- Q.2.** Define (ANY THREE): (3)
- (A)
1. Allele.
 2. Homogametic.
 3. Recessive trait.
 4. Backcross.
 5. Phenotype.
 6. Forward mutations.
- (B) Name the following (ANY TWO): (2)
1. A type of mutation in which there is a change of genotype from mutant to wild type or to partially wild type.
 2. A cross which involves crossing of F₁ hybrid X F₁ hybrid.
 3. Symbolic designation of mutant type of trait.
 4. The phenotypic ratio of F₂ generation for a monohybrid cross.
- (C) Attempt ANY TWO of the following : (10)
1. Explain Pedigree and differentiate between the inheritance of dominant and recessive traits?
 2. Using Punnet square method obtain the phenotypic ratio for F₂ generation when a homozygote true breeding yellow smooth plant which is dominant over homozygote true breeding green wrinkled plant is crossed?
 3. Describe segregation and assortment in haploid organisms.
 4. Write a note on physical mutagens.

...2/-

Q.3. (A) Fill in the blanks (ANY THREE):

1. Associations between roots of vascular plants and fungi are called as -----.
2. ----- are acidic polymers of ribitol phosphate or glycerol phosphate.
3. Condition in which fruit is formed without fertilization is called as -----.
4. ----- found in methanogenic bacteria which is a flavin-like compound in the anaerobic electronic transport system.
5. -----, a type of cyanobacteria are used as water pollution indicators.
6. ----- is commonly known as Bread Mould.

(B) Name the following (ANY TWO):

1. Example of simple permanent tissue.
2. Example of storage root.
3. Unicellular fungus.
4. A red phycobilin.

(C) Answer the following (ANY TWO):

1. Give characteristics of Actinomycetes.
2. Write a note on storage stems.
3. Explain complex tissues in plants.
4. Explain cell walls of Gram positive bacteria and Gram negative bacteria in detail.

Q.4. Write short notes on (ANY THREE):

1. Monohybrid cross.
2. Control of microorganisms using chemical agents.
3. Methanogenic bacteria.
4. Silent and Frameshift mutations.
5. Different types of media used for growth of organisms.
6. Mesistamatic tissues.

-X-X-X-X-