Progressive Education Society's

Modern College of Arts, Science & Commerce Ganeshkhind, Pune – 16, NEP 2020 (Autonomous)

End Semester Examination: Nov/Dec 2023

***Total No. of Questions**: 5/33* ***Total No. of Pages**: 2*

First Year (B.Sc.)
COURSE CODE: MIC11101
COURSE NAME: Major-Microbial World and Principles of Microbiology
(Semester I)

Program: BScGen03 **Credits:** 4
Program Specific: Microbiology **Time:** 3 Hours
Course Type: Major DSC **Max. Marks:** 60
Paper: I
SET: A

Instructions to the candidate:

1) *All questions are compulsory.*
2) *Figures to the right indicate full marks.*
3) *Draw a well labelled diagram wherever necessary.*

SECTION: A

Q1) Answer the following **[1 X 10 =10]**

1. Mention highlights of contribution of Alexander Fleming in Microbiology.
2. State morphological properties of fungi.
3. Illustrate role of algae in ecosystem.
4. Name the bacterial RNA molecule that is used for classification?
5. Enlist the norms for Binomial nomenclature.
6. Device a method for sterilization of 10 ml of nutrient broth containing heat sensitive molecules.
7. Give one example of halogen which is used for disinfection purpose and state where it is used.
8. Explain concept of resolving power.
9. Calculate Numerical aperture value of the lens if refractive index of the material present between object and lens is 1.4 and sinϴ value is 0.9.
10. Quote wavelength range of UV and visible light.

SECTION: B

Q2) Answer the following (Attempt any 5/7) **[5 X 2 = 10]**

1. Name any two diseases caused by Prions?
2. State biogenesis and abiogenesis theory.
3. Differentiate between Eubacteria and archaebacteria.
4. Correlate condenser lens and clarity of image formed in Microscope?
5. Name the instrument used for sterilization on the principle of dry heat state time temperature relationship. .
6. Explain the scope of microbiology in food industry
7. Describe the role of mordant in staining.

P.T.O.

SECTION: C

Q3) Answer the following (Attempt any 5/7) **[5 X 3 = 15]**

1. Illustrate the contribution of Anton van Leeuwenhouek in Discovery of Microscope
2. Comment on classification of viruses.
3. Delineate the uses of microorganisms in Agriculture.
4. A compound used for staining in specific type of microscopy was absorbing light of smaller wavelength and emitting light of higher wavelength. Identify the phenomenon.
5. Explain the types of objective lenses.
6. Categorize the following stains in two classes, stains used for negative staining and stains used for positive staining
   Nigrosin, Saffranin, Crystal violet, Congo red
7. Give diagrammatic representation for sterilization by filtration.

SECTION: D

Q4) Answer the following (Attempt any 3/5) **[3 X 5 = 15]**

1. Revise properties of protozoans with examples.
2. Cite Koch's postulates
3. Differentiate between TEM and SEM
4. Describe principle of autoclave.
5. Illustrate use of Genetic engineering.

SECTION: E

Q5) Answer the following (Attempt any 2/4) **[2 X 5 = 10]**

1. Enlist the contribution of Louis Pasteur in field of Microbiology.
2. Explain Whittaker's five Kingdom classification system.
3. Discuss different parts of compound microscope along with their functions.
4. Summarize the principle of Gram staining.

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