

2021

MICROBIOLOGY — HONOURS

Paper : SEC-B-2

Unit : 1-6

(Microbiological Analysis of Air and Water)

Full Marks : 80

The figures in the margin indicate full marks.

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

Answer **question no. 1** and **any six** from the rest.

1. Answer **any ten** questions :

2×10

- (a) Define bioaerosol along with an example.
- (b) Define allergens. Give example of an allergen.
- (c) Name any two commonly found waterborne infections caused by bacteria.
- (d) What is meant by chlorination?
- (e) Why air is not considered as a natural environment for the growth and reproduction of microorganisms?
- (f) Name two airborne pathogenic microorganisms and diseases they cause.
- (g) What is indicator microorganism? Name the most popular indicator microorganism used as the indicator of water potability.
- (h) What are paracolon bacteria?
- (i) How can water be purified by sedimentation?
- (j) Name the media used for the culture of airborne bacteria and fungi.
- (k) What are droplet nuclei?
- (l) Write down the two advantages of membrane filtration technique.
- (m) What is the major component of biosafety cabinets that removes microorganism?
- (n) What is false presumptive test?
- (o) Write the principle of PA test.

2. (a) What is bioaerosol sampling?

(b) Is mold a bioaerosol?— Explain.

(c) What is an air sampler?

(d) What are the different types of air sampling?

2+1+3+2+2

Please Turn Over

3. (a) Why is it so important to sterilize operation theatres? Name the most common sterilizing agent for OT.
(b) Why UV light is present in laminar air flow?
(c) Diphtheria and Meningitis—What kind of diseases are these? Name the causative agents and symptoms of both the diseases. (2+1)+2+(1+2+2)
4. (a) What are the characteristics of indicator microorganisms?
(b) Explain the citrate test with proper reactions.
(c) Write down the names of two waterborne viral diseases with their causal agents. 3+4+3
5. (a) What is the causative agent of typhoid fever? What are the symptoms of this disease and how can it be prevented and treated?
(b) Comment on the role of HEPA filters in the inactivation of bioaerosols.
(c) What is meant by potable water? (1+1½+2½)+4+1
6. (a) Comment on the collection of water sample for microbiological analysis.
(b) What types of microorganisms are mainly found in air? Describe them briefly.
(c) Write down the role of Ozone in disinfection of drinking water. 3+4+3
7. (a) What factors determine the survival of microbes in air?
(b) Discuss the role of filtration in water purification processes.
(c) Differentiate between typical and atypical colonies. 4+4+2
8. (a) What should be the microbial safety standard for drinking water?
(b) Briefly write about the fate of bioaerosols.
(c) What factors determine the survival of microbes in air? 3+4+3
9. Write short notes on (*any four*) : 2½×4
(a) Flow chart of MTF
(b) Indoor control of airborne microorganism
(c) Laminar Air Flow
(d) Water purification by precipitation
(e) Dessication.
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