

**2021**

**MICROBIOLOGY— GENERAL**

**Paper : SEC-B-1**

**(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.*

*Question Nos. 1 and 2 and any four from the rest.*

1. Answer **any ten** from the following questions: 2×10
- (a) What are faecal coliform?
  - (b) What are allergens?
  - (c) What is the utility of HEPA filter?
  - (d) What is Bio aerosol? Mention its effect on human health.
  - (e) Write the mode of action of desiccation.
  - (f) What are aflatoxin?
  - (g) Name two pathogenic organisms causing airborne infection.
  - (h) Define incineration.
  - (i) Name two waterborne diseases caused by bacteria.
  - (j) What is potable water?
  - (k) What is the effect of UV ray on microbes?
  - (l) Why air is not a proper media for microbial growth?
  - (m) What is the effect of atmospheric humidity on microbes?
  - (n) How does pH of water affect the quality of microbes in water?
  - (o) What is aerodynamic diameter?
2. Write short notes on (**any four**): 5×4
- (a) IMViC Test
  - (b) Waste water treatment
  - (c) Bio aerosol sampling

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- (d) Presumptive test
- (e) Different methods of room sanitization techniques
- (f) Enumeration of bacteria in air by “Impingement in liquids” method.
3. (a) Write the working principle of autoclave and hot air oven.
- (b) Why are coliform counts used to assess the safety of potable water?
- (c) Mention a name of a disinfectant and explain its mode of action. (2+2)+3+(1+2)
4. (a) Describe Anderson air sampler technique.
- (b) Briefly state the different air sanitization methods.
- (c) Name the virus that cause airborne disease. 4+4+2
5. (a) Mention two advantages and disadvantages of membrane filtration technique.
- (b) Write one application of membrane filtration technique in water treatment.
- (c) Define selection media and enrichment media. Give example of each. (2+2)+2+(2+2)
6. (a) What do you mean by false presumptive test?
- (b) Write down the principle of endo agar and EMB agar.
- (c) Name two water borne fungus and the disease caused by them. 2+(2+2)+(2+2)
7. (a) What is droplet infection? How droplet infection can lead to an airborne disease?
- (b) Differentiate BOD and COD.
- (c) Describe completed test for microbiological analysis of water. (2+2)+2+4
8. (a) Describe any one method of water sample collection.
- (b) *E. coli* is considered as indicator organism.– Justify.
- (c) What do you mean by MPN?
- (d) Define CFU. How CFU of drinking water can be determined? 2+2+2+(2+2)
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