

**2021**

**MICROBIOLOGY — GENERAL**

**Paper : SEC-A-3**

**[Microbial Quality Control in Food and Pharmaceutical Industries]**

**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 **2** (compulsory) and **any four** questions from the rest.

1. Answer **any ten** questions :

2×10

- (a) What is BSL-4?
- (b) State the difference between synthetic and complex media.
- (c) What are the agents associated with BSL-2?
- (d) Define most probable number.
- (e) Write down the uses of MacConkey agar.
- (f) What do you mean by inoculation?
- (g) What are biosensors?
- (h) What is TCBS agar?
- (i) What do you mean by gradation of milk?
- (j) What is HEPA filter?
- (k) Write down the disadvantages of spread plate method.
  - (l) Name one immunological method for detecting microbes in food and pharmaceutical industry.
- (m) What is the full form of MBRT?
- (n) What is enrichment culture method?
- (o) Give two examples of defined media.
- (p) Define the term sterilization.

2. Write short notes on (**any four**) :

5×4

- (a) Methods of disinfection
- (b) Mannitol salt agar
- (c) PCR based detection of microbes in food
- (d) Direct microscopic count
- (e) HACCP
- (f) Limulus Lysate test.

**Please Turn Over**

3. (a) Mention the use of XLD agar.  
(b) What is the purpose of using EMB agar?  
(c) What are the good practices in microbiological laboratory?  
(d) Mention the procedure of Resazurin test. 2+2+3+3
4. (a) Schematically represent CCP decision tree.  
(b) What do you mean by control point?  
(c) Write down the principle and application of HACCP.  
(d) What is critical limit?  
(e) What is the principle of autoclaving? 2+1+3+2+2
5. (a) What is the full form of MSA?  
(b) State about the salt concentration of MSA.  
(c) Write down the composition of MSA.  
(d) Mention the difference between lactose fermentor and non-lactose fermentor. 2+2+4+2
6. (a) Name two disinfectants with their uses.  
(b) Give name and use of one disinfectant of water.  
(c) Mention two physical methods of disinfection. (2+2)+2+(2+2)
7. (a) How can you use nucleic acid probe for detection of food borne pathogen?  
(b) Write down the uses of Salmonella and Shigella agar media. 5+5
8. (a) What are the limitations of HACCP?  
(b) What are the various microbiological criteria for various food products?  
(c) State difference between BSL-3 and BSL-4. 3+3+4
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