

2020

**MICROBIOLOGY — GENERAL**

**Paper : SEC-A-1**

**[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.*

1. Answer **any ten** questions from the following : 2×10
- (a) The stability test for any pharmaceutical products is performed for how many days and why?
  - (b) What is the principle of MBRT?
  - (c) Name the virus causing COVID-19.
  - (d) What do you mean by moist heating?
  - (e) What is 'aflatoxin'?
  - (f) What is the role of HEPA filter?
  - (g) Why milk is pasteurized and not sterilized?
  - (h) What is skimmed milk?
  - (i) What is the selective agent in MacConkey agar?
  - (j) Give one example of enrichment media and selective media each.
  - (k) What do you mean by nucleic acid probe?
  - (l) BSL-4 includes which type of pathogenic microorganisms? Give one example.
  - (m) Why 70% alcohol is better antibacterial agent than absolute alcohol?
2. Write short notes on **any four** from the following : 5×4
- (a) Methylene blue reduction test
  - (b) Polymerase chain reaction
  - (c) Good Microbiological Practices
  - (d) Comparison between Pour plate and Spread plate method
  - (e) Serotyping
  - (f) Air borne pathogens.

**Please Turn Over**

Answer *any four* from the following.

3. (a) Why autoclave is considered as an essential equipment in a microbiology laboratory?  
(b) What do you mean by the term containment in laboratory practice?  
(c) What do you mean by opportunistic pathogens?  
(d) Which method will be most probable for sterilization of the following items—  
(i) Culture media  
(ii) Heat labile vitamin solution  
(iii) Inoculation loop. 3+2+2+3
4. (a) How hazardous effects of biowastes can be neutralized?  
(b) How would you disinfect your cellphone?  
(c) Give a brief account of MPN method.  
(d) How would you protect open wounds in your hand in laboratory? 3+2+3+2
5. (a) What is the relationship between the working distance of an objective lens and its magnification power?  
(b) What is the function of immersion oil when viewed with 100X objective lens?  
(c) What is a bacterial colony?  
(d) Why is dilution a necessary part of spread-plate technique?  
(e) Before inoculating and pouring molten nutrient agar into a plate, why must the agar first be cooled to 50°C? 2+2+2+2+2
6. (a) Define critical control point.  
(b) Why it is important to identify critical control point in HACCP?  
(c) What are food safety objectives?  
(d) Give a flow diagram for basic steps of HACCP for food safety.  
(e) Name a food borne pathogen. 2+2+2+3+1
7. (a) Write *four* characteristics of coliform bacteria.  
(b) What is the full form of 'IMViC'?  
(c) What is its utility, after completed test? 4+2+4
8. (a) Mention the sugar and indicator dye present in the XLB agar.  
(b) What are the general control measures?  
(c) How does an auditor validate 'cultural method' during HACCP?  
(d) How should the products be described in a bakery during HACCP study? 2+2+3+3
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