

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.*

Question nos. 1 and 2 are compulsory and answer **any four** from the rest.

1. Answer **any ten** questions :

2×10

- (a) What is incineration?
- (b) What do you mean by critical control point (CCP)?
- (c) What is a biosensor for detection of food borne pathogens?
- (d) Mention two limitations of HACCP system.
- (e) State the difference between chemically defined and complex media.
- (f) What is a BSL-2 laboratory?
- (g) Mention the use of EMB agar media.
- (h) Write down the composition of Sabouraud agar media.
- (i) What do you mean by steam under pressure?
- (j) What is an enrichment medium? Give example.
- (k) Why MBRT is called reduction test?
- (l) Write down two disadvantages of streak plate method.
- (m) What is biosafety cabinet?
- (n) What is endotoxin?
- (o) How do you perform direct microscopic count?
- (p) Write down the use of Salmonella and Shigella agar media.

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

5×4

- (a) Most probable number
- (b) Limulus lysate test for endotoxin
- (c) Resazurin test

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- (d) Enrichment culture technique
 - (e) Principle of autoclaving
 - (f) Uses of XLD media
3. (a) Mention three limitations of S.S. agar.
- (b) Why mannitol is used in mannitol salt agar?
- (c) What is the purpose of using EMB agar?
- (d) Mention the components of EMB agar. 3+2+3+2
4. (a) Schematically represent the process of standard plate count method.
- (b) What are the three important questions there in HACCP plan for a food establishment?
- (c) What indicator is used in MAC agar?
- (d) Why does enteric Gram negative bacteria selectively grow in MacConkey agar? 3+3+2+2
5. (a) What is CCP decision tree?
- (b) What is corrective action?
- (c) What do you mean by HACCP plan?
- (d) What is verification of HACCP plan?
- (e) What do you mean by validation of HACCP plan? 2+2+2+2+2
6. (a) What do you mean by non-lactose fermenter organism?
- (b) Mention the use of xylose in XLD agar.
- (c) Write about PCR based detection of microbes in food. 2+2+6
7. (a) Differentiate between BSL-1 and BSL-2 laboratories.
- (b) How can you differentiate between lactose fermenter and non-lactose fermenter? 4+6
8. (a) Write about the principles of detection of microorganisms in mannitol salt agar media.
- (b) State uses of mannitol salt agar media. 6+4
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