2021

MICROBIOLOGY — HONOURS

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 questions from the rest.

1. Answer ***any ten*** questions : 2×10

(a) Name two bacteria that are non-lactose fermenters.

(b) What is endotoxin?

(c) Write the full form of FISH.

(d) Mention two limitations of HACCP system.

(e) Why is Xylose incorporated into XLD agar medium?

(f) What is a BSL-3 laboratory?

(g) What is HEPA filter? Why is it used?

(h) What is the purpose of using bile salts, brilliant green and sodium citrate in SS Agar?

(i) Name the indicator used in Mannitol Salt Agar and why?

(j) What do you mean by serotyping?

(k) Write the main objective of COB test.

(l) Why is MBRT called reduction test?

(m) What is meant by biohazardous waste? Cite two examples.

(n) What is a fibre-optic bio sensor?

(o) What is 'aflatoxin'?

(p) Write two limitations of EMB agar.

2. Write short notes on (***any four***) : 5×4

(a) Resazurin Assay of milk

(b) Disinfection

(c) LAL test

(d) MPN

(e) Principles of HACCP

(f) Uses of Saboraud Agar media.

Please Turn Over

3. (a) How can you differentiate between the colony characteristics of coagulase positive and coagulase negative species of staphylococei with respect to Mannitol Salt Agar medium.

(b) Write the modification done by Levine in EMB agar formulated by Holt-Harris and Teague?

(c) Write two uses of MacConkey agar.

(d) Name two antibiotics that can be added to Saboraud Dextrose Agar to inhibit gram positive and negative bacteria.

(e) Differentiate between the colony characteristics of *E. coli* and *Enterobacter aerogenes* on EMB agar medium. 3+2+2+1+2

4. (a) What do you mean by opportunistic pathogens? Give example.

(b) Which type of organism will show positive reaction for VP test and why? State reaction.

(c) Name two factors which may contribute to outbreaks of food borne illness.

(d) How does osmolarity affect bacterial cells? 2+(1+1+2)+2+2

5. (a) Differentiate between critical control point and critical limit.

(b) What do you mean by O Hazard food?

(c) What do you mean by pre-requisite programme of HACCP? Name few measures of such programme.

(d) What is verification of HACCP plan?

(e) What is CCP decision tree? 2+2+(1+2)+2+1

6. (a) What do you mean by VBNC? How could you detect their presence?

(b) Why PCR is called a chain reaction? Name two food-borne pathogens that have been identified with PCR successfully.

(c) How can you identify coliform bacteria? What is the permissible limit of coliforms in drinking water according to BIS/FSSAI? (1+2)+(1+2)+(2+2)

7. (a) Differentiate between BSL-I and BSL-2 laboratories.

(b) What is Litmus lysate test for endotoxin?

(c) Write the full form of NACMF and ICMSF.

(d) Based on MBRT test comment on the gradation of milk samples. 2+3+2+3

8. Distinguish between the following : 2½×4

(a) Sterilization and Pasteurization

(b) Microbiostatic and Microbiocidal agents

(c) Radiolabelled probe and Fluorescent probe

(d) ISI and BIS.