

This question paper contains 4 printed pages]

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S. No. of Question Paper. : 7117

Unique Paper Code : 32533931 HC

Name of the Paper : Microbial Quality Control in Food and
Pharmaceutical Industries

Name of the Course : B.Sc. (Hons.) Microbiology : SEC

Semester : III

Duration : 2 Hours

Maximum Marks: 50

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt any five questions.

All questions carry equal marks.

Attempt all parts of a question together.

I. (a) Name the Biosafety level facility to be used while
working with the following microorganisms : 1×3=3

(i) Influenza virus

(ii) *Escherichia coli*

(iii) *Mycobacterium tuberculosis*

P.T.O.

- (b) What are the components of the following media which make these selective/differential ? 2×3=6
- (i) XLD agar
- (ii) Mannitol salt agar
- (iii) EMB agar.
- (c) Which biosafety cabinet provides both personnel (handler) and product protection ?
2. (a) How would you confirm the presence of coliforms in a food sample ? 4
- (b) What are the reasons for coagulation of serum on heating ? 2
- (c) An injectable has passed the sterility test, but it is suspected to contain a microbial component. Name the possible component and the method of its detection. 4
3. (a) Outline the scheme for sterility testing of the following pharmaceutical products (any 2) : 3×2=6
- (i) Ointment
- (ii) Capsules
- (iii) Syrup.

- (b) Discuss the use of Nucleic acid probes for determining the presence of microbes in a given food sample giving a suitable example. 4
4. (a) If 100 grams of a food sample contains only 10 cells of *Staphylococcus* while the number of other bacterial contaminants is 10^4 , how will you test for the presence of *Staphylococcus* in the food sample ? 2
- (b) Autoclaving and Incineration are methods of disposal of biohazardous wastes. Differentiate between the two. 4
- (c) Draw a schematic diagram of the functioning of Biosafety Cabinet type II. 4
5. (a) Expand TQM and HACCP. Enlist the 7 principles of HACCP. 5
- (b) Determining the Standard plate count of a milk sample takes at least 24 hours. What are the different ways by which you may check the quality of milk in a shorter time ? Explain any *one* method in detail. 5

6. (a) What do you understand by Good Laboratory Practices compliance ? How is this compliance facilitated ? 3
- (b) Briefly describe the use of ELISA for detection of toxins in food with a suitable example. 4
- (c) A 100 ml sample of drinking water was found to contain five *Escherichia coli* cells. Is it safe drink this water ? Write the BIS microbiological standards for drinking water. 3