

**Shree Manibhai Virani and Smt. Navalben Virani Science College (Autonomous), Rajkot**  
Affiliated to Saurashtra University, Rajkot

**SEMESTER END EXAMINATION NOVEMBER 2018**

**B.Sc. Biotechnology**

**16UBTDC01 – FOOD AND DAIRY SCIENCE**

*Duration of Exam – 3 hrs*

*Semester – V*

*Max. Marks – 70*

**Part A (10x1= 10 marks)**

Answer **ALL** questions

1. Expand the term FSSAI
2. What does HACCP stand for?
3. What is meant by “cold sterilization” in food preservation?
4. The process of preserving food by rapid freezing followed by dehydration under vacuum is known as \_\_\_\_\_
5. What is the reason for blanching vegetables prior to freezing?
6. Write two advantages of food processing
7. An enzyme whose activity is determined to ensure the efficiency of pasteurization of milk is \_\_\_\_
8. Water added to milk is detected by checking the \_\_\_\_\_
9. What are functional foods?
10. Give an example of genetically modified food modified using antisense RNA technology.

**Part B (5x5= 25 marks)**

Answer **ALL** questions

- 11a. Write in details classification of food and role of each class?

**OR**

- 11b. Give a brief account of botulism and the mode of action of botulin toxin.

- 12a. List out any five conventional methods of food preservation. Describe their principle and an example of food item preserved by each method.

**OR**

- 12b. Discuss in details the use of radiation in food preservation?

- 13a. What is the purpose of food packaging? What are different materials used in food packaging? Giving examples explain basis of selection of different packaging material for different type of food products?

**OR**

- 13b. Write short note on processing of cereals.

- 14a. Write in details the composition and constituents of milk and different adulterants added to it?

**OR**

- 14b. Write a short note on microbial spoilage of milk?

15a. Write a comparative account of probiotic and prebiotics.

**OR**

15b. Write a brief account on functional foods.

**Part C (5X7= 35 marks)**

Answer **ALL** questions

16a. What is food poisoning? What are different types of food poisoning? Give two examples of each type.

**OR**

16b. What are D and z values?

If the D value for *Clostridium botulinum* spores at 121 °C is 0.2 minutes, how much time will be required to completely sterilize (reducing the spore count to 0.01) a food item having initial spore count of  $10^{12}$ .

If the z value for *C. botulinum* spores is 10°C, how much time will be required to achieve same level of sterilization, if the food item is processed at 111°C instead of 121°C.

17a. List out the various intrinsic and extrinsic factors affecting food spoilage? Discuss in details the role of  $a_w$  and storage temperature in food spoilage.

**OR**

17b. What are chemical preservatives? Write about their classification. List out different chemicals used as preservatives?

18a. List out ingredient of Jam and write down its purpose in detail.

**OR**

18b. What is vegetable? Write down classification of vegetables. List out the methods of processing vegetables.

19a. What are curd and yogurt? Differentiate between the two products. Draw process diagram for production of yogurt and curd.

**OR**

19b. What is pasteurization? What are different regimes used in pasteurization? Write in details a test to determine the efficiency pasteurization of milk.

20a. What are nutraceuticals? Give example of few ingredients and their source used as nutraceuticals and their potential benefits.

**OR**

20b. What are GM foods? Give examples of two GM food with their advantage. What is the status of GM foods in India?