

This question paper contains **3** printed pages]

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S. No. of Question Paper : **5826**

Unique Paper Code : **2202031102**

Name of the Course : **B.Sc. (Hons.) Food Technology (NEP-UGCF)**

Name of the Paper : **Principles of Food Science**

Semester : **I, Core**

Duration : **3 Hours**

Maximum Marks : **90**

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

Attempt any *five* questions.

Question No. **1** is compulsory.

Part of the questions to be attempted together.

All questions carry equal marks.

1. Describe the following briefly (any *six*) :

6×3=18

- (a) Triangle test and its use in sensory evaluation
- (b) Hedonic scale in food product testing
- (c) Inhibitory substances for microbial growth
- (d) Foam in the context of food products and its formation
- (e) Importance of glass packaging in the food industry
- (f) Zeta potential
- (g) Eutrophication.

P.T.O.

2. Differentiate between (any *three*) : 3×6=18
- (i) Intrinsic and Extrinsic factors affecting microbial growth
 - (ii) Sols and Gels
 - (iii) Rigid and flexible packaging
 - (iv) Descriptive and Discriminative tests
 - (v) Sanitizers and detergents
 - (vi) Acidity and alkalinity of water.
3. (a) Describe the theories of gustation, focusing on the recognition and perception of basic tastes. 8
- (b) Define Biological Oxygen Demand (BOD) and Chemical Oxygen Demand (COD). Explain the methods used for their determination and discuss their importance in wastewater treatment. 4+6=10
4. Justify the following statements (any *three*) : 3×6=18
- (a) Water hardness is an important parameter for assessing water quality.
 - (b) Packaging plays a key role in enhancing the shelf life of food products.
 - (c) Cleaning-In-Place (CIP) is a vital procedure in the food industry.
 - (d) Taste and flavor are critical components in sensory evaluation of food.
 - (e) Emulsifying agents are essential in food processing.
5. (a) Explain the concept of breakpoint chlorination. Describe the different properties of wastewater and highlight their importance in food-related applications. 4+4=8

- (b) Elaborate on the importance of packaging in ensuring food safety. Mention the different types of packaging materials used in food packaging, outlining their key properties, and provide suitable examples for any *two* of them. 4+3+3=10
6. (a) Provide a brief overview of the different types of sensory panels. Explain any 2 theories of olfaction. 2+6=8
- (b) Describe the different phases of the bacterial growth curve with a neat labelled diagram. 10
7. (a) Outline the methods used for wastewater treatment, describe the various secondary treatment methods in detail. 2+8=10
- (b) List the factors affecting the growth of microorganisms in foods. Discuss the effect of pH and nutrient content of food on the growth of microorganisms. 2+6=8