**22FPB210**

**PSG COLLEGE OF ARTS & SCIENCE**
(AUTONOMOUS)

**BVoc DEGREE EXAMINATION DECEMBER 2023**
(Second Semester)

Branch - **FOOD PROCESSING TECHNOLOGY**

**CHEMISTRY II**

Time: Three Hours Maximum: 50 Marks

**SECTION-A (5 Marks)**
Answer **ALL** questions
**ALL** questions carry **EQUAL** marks (5 x 1 = 5)

1 What type of distillation is commonly used to extract essential oils from plant materials?
(i) Simple distillation (ii) Fractional distillation
(iii) Vacuum distillation (iv) Steam distillation

2 Which separation technique relies on the differences in density to separate substances?
(i) Membrane separation (ii) Filtration
(iii) Centrifugation (iv) Adsorption

3 Which of the following is an example of an inorganic mineral salt?
(i) Calcium citrate (ii) Iron sulfate
(iii) Potassium sorbate (iv) Citric acid

4 What is the term for the unique 3D structure of an enzyme's active site that allows it to interact specifically with its substrate?
(i) Specificity site (ii) Active region
(iii) Lock and key model (iv) Induced fit model

5 Which of the following is an example of a pollutant commonly generated by the food industry?
(i) Carbon dioxide (CO2) (ii) Nitrogen gas (N2)
(iii) Pesticides (iv) Oxygen (O2)

**SECTION - B (15 Marks)**
Answer **ALL** Questions
**ALL** Questions Carry **EQUAL** Marks (5 x 3 = 15)

6 a Describe the basic principle behind crystallization as a purification technique.

OR

b Analyze the various applications of distillation in the food industry.

7 a Explain the principle of centrifugation and how it is applied in the food industry.

OR

b Describe fractionation and its purpose in the food industry.

8 a Summarize the role of artificial preservatives in preventing food spoilage

OR

b Describe the various types of mineral salts used in the food industry.

9 a Explain the concept of prosthetic groups in enzymes and their role in enzyme function.

OR

b Sketch the induced fit model of the enzyme-substrate interaction.

**Cont...**

10 a Describe the classification of solid waste based on its sources and characteristics.

OR

b Outline the key steps involved in the composting process for organic waste.

**SECTION -C (30 Marks)**

Answer **ALL** questions

**ALL** questions carry **EQUAL** Marks (5 x 6 = 30)

11 a Summarize the importance of sample preparation in analytical chemistry.

OR

b Discuss sublimation as a method for purifying organic compounds.

12 a Outline the different types of chromatography techniques

OR

b Examine the concept of adsorption in separation processes.

13 a Discuss in detail how antioxidants contribute to the stability and shelf life of food products.

OR

b Categorize the types and functions of natural food preservatives in detail.

14 a Analyze the various factors that can influence the mechanism of enzyme action.

OR

b Describe the general structure of amino acids and the properties of their side chains.

15 a Examine common types of pollutants generated by the food industry.

OR

b Discuss the importance of sustainability in waste management practices.

Z-Z-Z END