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Sub: BAKERY SCIENCE AND TECHNOLOGY

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1/ Answer: The different units of bakery subsectors are as follows - Bread, Biscuits and cookies, cakes and pastries.

Bakery industry in India today has an important place in the industrial map of the country. Bakery products are an item of mass consumption in view of its low price and high nutrient value. With rapid growth and changing eating habits of people, bakery products have gained popularity among masses. The sector, typically constitutes cakes, breads and biscuits. Bakery industry in India is on a growth curve. The sector which is difficult to define has indicated promising growth prospects and has been making rapid progress. The bakery industry has achieved third position in generating revenue among the processed food sector. Biscuit industry contribute Rs: 8,000 crore to the FMCG industry and provide a vast opportunity for growth. In India Biscuit industry came into limelight in the later part of 20th century when the urbanized society called for ready made food products.

2/ Answer: The sector, which is registered with the government is called an organised sector. In this sector, people get assured work, and the employment terms are fixed and regular. This sector is regulated and taxed by the government.

3/ Answer: A product life cycle is the length of time from a product first being introduced to consumers until it is removed from the market. A product life cycle is usually divided into four stages \_\_\_\_\_

(i) Introduction: Product is launched. Sales grow slowly as people are not aware of the product.

(ii) Growth: Sales start to grow rapidly. Persuasive advertising may be used. Prices may be reduced as new competitors enter the market. Profits start coming.

(iii) Maturity: Sales now increase slowly.

Intense competition in the market. Competitive or promotional pricing may be used. Profits may soon start to fall as the product enters the saturation stage.

(iv) Decline : Sales will fall. Product loses its appeal. Stiff competition in the market. Advertising is reduced and then stopped. Production may be stopped in the future.

4/ Answer : Baking is a processing of cooking by application of dry heat. The changes to a dough or batter as it bakes are basically the same in all baked products, from breads to cookies and cakes.

The stages in the baking process are —

- (i) Formation and expansion of gases.
- (ii) Trapping of the gases in cell cells.
- (iii) Gelatinization of starches.
- (iv) Coagulation of proteins.
- (v) Evaporation of some of the water.
- (vi) Melting of shorteners.
- (vii) Crust formation and browning.

5/ Answer : Some of the most commonly used ovens are —

(i) Direct-fired oven (DFO) : DFO place combusting gas inside the baking chamber to heat the air and the products. The heat transfer in a direct gas-fired oven

is primarily carried out by radiation from the flames, top, base and walls of the baking chamber.

(ii) Indirect-fired oven (IFO): IFOs indirectly heat the baking chamber by using exchangers. This oven is suitable for sensitive bakery products since the byproducts of combustion remain inside the heat exchanger structure and do not come into direct contact with the dough pieces.

(iii) Electric Oven: Electric ovens have construction features similar to those of OFOs, and operate similarly in terms of heat transfer mechanism to bake the products.

(iv) Rack Oven: A rack oven is the batch vertical oven into which racks full of sheet pans can be subjected for baking. This unit can hold 8 to 20 sheet pans per baking cycle.

(v) Reel Oven: A reel oven is an oven in which trays or shelves are placed in platforms rotating on a central horizontal axis. This type of oven is mostly designed for retail bakeries or baking plants with small-scale production.

G/Answer: In cooking, leavening agent is a substance used which causes expansion in

and batters causing a foaming action that lightens and softens the mixture. Such agent includes air, steam, yeast, baking powder and baking soda.

Examples: Yeast — a biological leavening agent.

Baking powder & soda — a chemical leavening agent.

Function of leavening agents are —

- ① Leavening agents are used in food products to help create structure and texture through gas expansion as a result of a chemical reaction.
- ② Leavening agents create the dough or batter to make it light and porous.

7/ Answer: ① Bread making

The process of bread making as follows —

- ① Weighing and mixture of ingredients.
- ② Kneading (20 min)
- ③ Proofing (30 min)
- ④ Rising / Folding
- ⑤ Shaping
- ⑥ Proofing
- vii) Proofing (35 min)
- viii) Baking ( $275^{\circ}\text{C}$  / 30 min)
- ix) Cooling (1 hr)
- x) Slicing
- xi) Packing

② Biscuit making: Process are as follows —

- ① Creaming (Fat and sugar)
- ② Addition of flour.
- ③ Addition of flavouring agents

(iv) Addition of leavening agents.

(v) Kneading to prepare dough.

vi) Rolling and sheeting.

vii) Cutting.

viii) Baking ( $950^{\circ}\text{F}$  / 15 min).

ix) Cooling

x) Packaging

(c) Cake making: Process of cake making are -

(i) Weighing of ingredients (Butter and sugar)

(ii) Creaming stage (20 min)

(iii) Mixing stage (Egg, flour, baking powder, lemon)

iv) Greasing of pan

v) Pouring the batter in greased pan.

vi) Baking ( $190^{\circ}\text{C}$  / 15 min)

vii) Cooling (1 hr)

viii) Packaging (in aluminium foil)

ix) Storage

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