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53 (FPT 601) FPTC

2019

## FOOD PACKAGING TECHNOLOGY

Paper : FPT 601

Full Marks : 100

Time : Three hours

***The figures in the margin indicate full marks for the questions.***

Answer **any five** questions out of six.

1. (a) What are the different polymerization reactions to synthesize plastic polymers for packaging? Discuss with examples. 5
- (b) Discuss the following important functions of packaging : 9
  - (i) Protection
  - (ii) Value addition
  - (iii) Communication.

Contd.

(c) Write short notes on **any two** of the following : 3×2=6

- (i) Canned end and Maker's end
- (ii) Different parts of a paper carton
- (iii) Microwave Doneness Indicator.

2. (a) Elaborate on the following properties of food packaging : 4×3=12

- (i) Resistance to temperature fluctuations
- (ii) Protection against microbial contamination
- (iii) Temper-evident packaging.

(b) Elaborate on the operation of a Form-Fill-Seal (FFS) machine using a simple schematic diagram. 8

3. Elaborate on various steps in paper-sheet manufacturing using schematic diagrams. 20

4. (a) Briefly elaborate on the following processes : **(any two)** 7×2=14

- (i) Corrosion of a metal can
- (ii) Mixing and melting of a glass bottle
- (iii) Metalization of a plastic film.

(b) Explain the principle of aseptic packaging using a simple schematic diagram. What is the importance of aseptic packaging ? 4+2=6

5. (a) Explain with schematic diagram, blow-moulding process used to produce glass bottles and jars. 12

(b) Explain different levels of packaging with examples. What is "grammage" of paper, and how is it measured ? 6+2=8

6. Elaborate on **any four** of the following plastic packaging materials : 5×4=20

- (i) Polyethylene
- (ii) Polypropylene
- (iii) Polyvinyl alcohol
- (iv) Polystyrene
- (v) Polylactic acid.