

Total number of printed pages-4

53 (FPT 601) FPIC

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) Describe *four* different levels of packaging with appropriate examples. 5
- (b) Write short notes on **any two** of the following properties of Food Packaging : 3x2
 - (i) Resistance to Temperature fluctuations
 - (ii) Protection against microbial contamination
 - (iii) Tamper-evident packaging.

Contd.

(c) Describe briefly the cost-considerations associated with Food Packaging. Define "permeability" or "permeability constant" for a packaging material. Elaborate with examples, the considerations for permeability of a Food Packaging. 4+2+3

2. (a) Describe elaborately (with schematic diagrams) the mixing, melting and forming processes during glass bottle manufacturing. 12

(b) What is passivation of a metal/steel sheet? List three major advantages of two-piece can over a three-piece can. 2+3

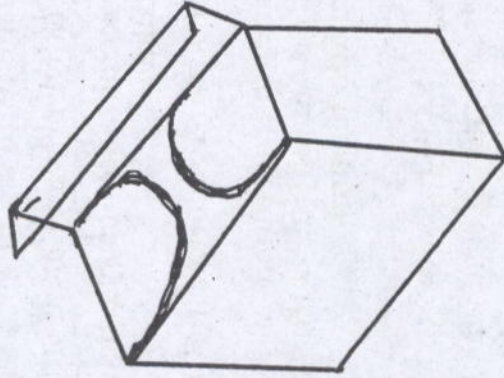
(c) What is meant by 'maker's end' (ME) and 'canners end' (CE)? What is the major difference between welding and soldering? 2+1

3. (a) Elaborate, with appropriate schematic diagram, the pulping process in paper manufacturing. 12

(b) What is "grammage" of paper? Explain "machine" and "cross" direction in paper and plastic sheet making process. What is the minimum grammage necessary for paperboard? 2+3+2



(c) Label the "tuck" in the given figure of a paper cartoon. 1



4. (a) Write elaborate description of **any two** of the following : 2x7

(i) Corrosion in tin-plated stainless steel can.

(ii) Different parts of a glass bottle.

(iii) Powder/dry coating of metal food cans.

(b) Explain addition polymerization and condensation polymerization in plastic manufacturing. Give an example for each of the two. 6

5. (a) Elaborate on **any two** of the following plastic packaging materials :

2×6

- (i) Ethylene vinyl alcohol (EVOH)
- (ii) Metalization of plastic packaging film
- (iii) Polyvinyl chloride (PVC).

(b) Explain the operation of a Form-fill-sealing machine with a simple schematic diagram. 8

6. (a) Explain the injection blow molding process of making rigid plastic bottles/jars using simple schematic diagrams.

12

(b) Explain the principle of Aseptic packaging. 3

(c) Name *four* major gases commonly involved in Modified Atmospheric Packaging (MAP). Explain what is "Microwave Doneness Indicator" (MDI)? Silver zeolite is a preservative releaser used in intelligent packaging. Explain.

1+2+2

