

17675

21415

3 Hours / 100 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each next main Question on a new page.
(3) Illustrate your answers with neat sketches wherever necessary.
(4) Figures to the right indicate full marks.
(5) Abbreviations used convey usual meaning.
(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any TEN of the following:

20

- Define the sorting and grading process.
- Write basic equation of mass and energy balance.
- Classify the heat exchangers.
- Name four novel thermal process techniques.
- Name four equipments required for fruit processing plants.
- Classify the food on the basis of spoilage.
- Name two physical methods of food preservation.
- Explain principle of canning.
- Name four equipments required in canning industry.
- Define the term: Thawing.

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- k) Write principle of freeze drying.
- l) Define malt vinegar and cider vinegar.
- m) Name two chemical preservatives used for fruit preservation.
- n) Name modern methods of fruit preservation.

2. Attempt any FOUR of the following: 16

- a) Classify the mixing equipments and size reduction equipments.
- b) Calculate the amount of heavy sugar syrup 70° brix and light sugar syrup 25° brix required to obtain mixed syrup of 100 kg with 45° brix.
- c) Describe the types of energy and energy balance equation of any one unit operation.
- d) Explain the chlorophyll and carotenoids pigments as food colours.
- e) State the principle of food preservation by fermentation method with two examples.
- f) Describe working of cryogenic freezing process with a diagrams.

3. Attempt any FOUR of the following: 16

- a) Draw the sketches of plate heat exchanger and spiral heat exchanger.
- b) Describe working of shell and tube heat exchanger with a diagrams.
- c) Define Pasteurisations. Name methods of pasteurisations.
- d) Describe the CAS and MAS system.
- e) Draw the flow sheet of canning process of sweet baby corn.
- f) Draw the flow sheet of canning of mango pulp.

- 4. Attempt any FOUR of the following:** **16**
- a) State the principle of microwave heating and its applications.
 - b) Define water activity and describe mass transfer in drying process.
 - c) Draw a labelled diagram of rising film evaporator.
 - d) Classify the food additives with examples.
 - e) Explain meaning of 'Sharp freezing'.
 - f) Define 'Fermentation'. State its applications.
- 5. Attempt any FOUR of the following:** **16**
- a) Enlist the factors affecting drying process.
 - b) Write principle of forced circulation evaporator.
 - c) Describe the process of quick vinegar production.
 - d) Enlist four spoilage of canned foods.
 - e) Describe the mechanical damages of foods.
 - f) Name the flavour compounds and types of flavour.
- 6. Attempt any FOUR of the following:** **16**
- a) Write applications of evaporation process of four factors affecting evaporation process.
 - b) List eight points to be consideration to start fruit and vegetable processing industry.
 - c) List synthetic food colours. Name banned food colour.
 - d) Describe brominated vegetable oils. State their use in food.
 - e) Name sulphur compounds and explain their use on food flavours.
 - f) State the principle of alcoholic fermentation process.
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