

TM243915U

Reg. No :

Name :

MASTER'S DEGREE (C.S.S) EXAMINATION, FEBRUARY 2024
2022 ADMISSIONS SUPPLEMENTARY (SAY)
SEMESTER III - GENERAL M. Voc. Food Processing Technology
VFPT3G07TM20 - Food Process Engineering

Time : 3 Hours

Maximum Weight : 30

Part A

I. Answer any Eight questions. Each question carries 1 weight

(8x1=8)

1. State the gas law relating volume and temperature with the derivation of its equation.
2. 34.2 g of sugar ($C_{12}H_{22}O_{12}$) was dissolved in water to produce 214.2 g of sugar syrup. Calculate molality and mole fraction of sugar in the syrup. Given $C = 12$, $H = 1$ and $O = 16$
3. Point out the difference between velocity measurement by Pitot tube and Venturimeter.
4. Draw a flowchart classifying types of pumps used in food plants.
5. Recall the theory of heat transfer.
6. Point out the relevance of F, D and z values in food processing.
7. Classify refrigerants based on the chemical composition.
8. Comment on refrigeration load.
9. List the relevance of size reduction in food industry.
10. Write a short note on leaching.



Part B

II. Answer any Six questions. Each question carries 2 weight

(6x2=12)

11. Derive the energy balance equation for an open system.
12. Describe the method for measurement of turbulent flow and streamline flow of fluids.
13. Point out the differences between Newtonian and Non-Newtonian fluids.
14. Illustrate the basic concepts that are associated with thermal destruction of micro organisms.
15. Describe the thermal processing of canning.
16. How is freezing time requirements being established?
17. List the desirable properties of a refrigerant.
18. Give a note on the various mixers used in food industry.

Part C

III. Answer any Two questions. Each question carries 5 weight

(2x5=10)

19. Derive Bernouille's equation for conservation of energy in fluid flow.
20. Derive the equation for heat conduction through (a) Slab (b) Cylindrical wall
21. Illustrate the working of a mechanical refrigeration system.
22. Elaborate on the process of size reduction with examples.