TM243646U

Reg. No :.....

Name :.....

MASTER'S DEGREE (C.S.S) EXAMINATION, NOVEMBER 2024

2020, 2021, 2022 ADMISSIONS SUPPLEMENTARY

M.VOC SEMESTER III - GENERAL

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. Recall the major differences between Newtonian and Non-Newtonian fluids.
4. Comment on use of pumps in liquid transport system with example.
5. Write the application of evaporation in food industry.
6. Recall the theory of heat transfer.
7. List the major contributors of refrigeration load.
8. Define the term refrigerant.
9. Identify the relevance of extrusion in food industry.
10. Point out the application of sedimentation in food industry.



## 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. Give a note on (a) Positive displacement pumps (b) Jet Pumps
13. Give a note on (a) Centrifugal pumps (b)Air lift Pumps
14. Explain how plate heat exchangers are utilized in food industries.
15. Derive the equation for heat conduction through a cylindrical wall.
16. How is freezing time requirements being established?
17. Elaborate on the different refrigerants utilized in food industry.
18. Describe the mechanical operation of mixing.

## Part C

**III. Answer any Two questions. Each question carries 5 weight** (2x5=10)

19. Determine velocity of fluid by use of Venturimeter.
20. Describe the thermal processing of sterilization.
21. Illustrate the working of a mechanical refrigeration system.
22. Describe the various filtration operations practiced in food industries.