



QP CODE: 22002307



Reg No :

Name :

MSc DEGREE (CSS) EXAMINATION , NOVEMBER 2022

Second Semester

M Sc FOOD TECHNOLOGY AND QUALITY ASSURANCE

CORE - FQ010201 - FOOD ENGINEERING

2019 Admission Onwards

2624CEDA

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Define the following terms saturated vapor, saturation pressure , superheated vapor, saturated liquid and subcooled liquid
2. Discuss the advantages and disadvantages of plate heat exchangers
3. Differentiate thermal conductivity and thermal diffusivity
4. What are Newtonian liquids?
5. Define the term "viscosity"
6. Difference between Shear-thinning liquids and shear-thickening liquids
7. Comment on mixing equipments used for paste and dough.
8. Explain spiral wound membrane system
9. Give an account of air-cooled condensers used in a refrigeration system
10. Explain the refrigerant flow rate and coefficient of performance (C.O.P.).

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Describe different engineering units with examples





12. Explain Newton's law of cooling
13. Derive equation of a parabola for fully developed flow condition
14. Explain Orifice meter
15. Give a detailed note on agglomeration equipments with neat sketch
16. Differentiate liquid-liquid extraction and leaching. What are the factors that influence the rate of extraction?
17. Describe indirect contact freezing systems with suitable diagrams
18. Write short notes on any two evaporator system with diagram

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Derive an expression for heat transfer through composite rectangular wall consisting of three layers starting from Fourier's law.
20. Derive an expression for the energy requirements of a pump for an incompressible fluid
21. Describe different extrusion systems used in food industry with neat diagrams
22. Define evaporators. Explain different types of evaporators used in food industry

(2×5=10 weightage)

