



QP CODE: 24018734



24018734

Reg No :

Name :

MSc DEGREE (CSS) EXAMINATION , APRIL 2024

Second Semester

M Sc FOOD TECHNOLOGY AND QUALITY ASSURANCE

CORE - FQ010201 - FOOD ENGINEERING

2019 Admission Onwards

0932CA34

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

Answer any **eight** questions.

Weight **1** each.

1. Explain phase diagram of water. Indicate the triple point of water.
2. What are scraped surface heat exchangers?
3. Define the log mean temperature difference (LMTD). Mention its significance.
4. What are the components of a centrifugal pump?
5. Describe U-tube manometer with a sketch.
6. Distinguish between time dependent and time independent non-Newtonian liquids.
7. Describe rotary drum vacuum filters.
8. Add a note on steeping.
9. Differentiate between slow freezing and quick freezing.
10. Give a note on Forced-Circulation Evaporator.

(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 radiative heat transfer between two objects.
13. Derive an equation for fanning friction factor for laminar flow.
14. Explain the instruments used to measure viscosity of liquids.





15. Add a note on evaporative concentration under vacuum.
16. What do you mean by phase separation? Explain with an example.
17. Give a detailed illustration of Multistage system in refrigeration.
18. With help of a sketch explain mechanical vapor recompression system in an evaporator. Give advantages.
(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 wall consisting of four layers starting from Fourier's law.
20. Discuss in detail the Blasius $1/7$ th power law for turbulent flow.
21. Discuss about different type of mixers used in food industry.
22. Describe a vapour-compression refrigeration cycle and depict it on a pressure-enthalpy chart.
(2×5=10 weightage)

