17U677 (Pages: 3) Name: ……..…….

Reg. No……..……

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2020

(CUCBCSS-UG)

CC17U FTL6 E15 – FOOD ENGINEERING

Food Technology – Core Course

(2017 Admission - Regular)

Time : Three Hours Maximum : 80 Marks

PART A

Answer ***all*** questions. Each question carries 1 mark.

1. An important characteristic that is considered while selecting a refrigerant is:

   a) Latent heat of vaporization b) Specific gravity

   c) Calorific value d) Sensible heat

2. A thermal process used to eliminate specific pathogenic micro organisms from food is:

   a) Blanching b) dehydration c) Pasteurization d) tempering

3. The mode of heat transfer that does not require medium for transfer is :

   a) Convection b) Conduction

   c) Radiation d) both convection and conduction

4. Plate heat exchanger is suitable for handling:

   a) High viscous material b) less viscous material

   c) Both less and high viscous d) none of the above

5. The refrigeration load is normally expressed as :

   a) kg/h b) m2/s

   c) Tones of refrigeration d) ˚C/s

6. Ratio of rate of mass of water vapor produced per unit area of steam consumed in an evaporator is termed as

   a) Steam economy b) Evaporator economy

   c) Steam efficiency d) evaporator efficiency

7. Which of the following is the “Time dependent Newtonian Liquid?”

   a) Bingham b) Rheopectic c) Herschel bulkley d) Dialatant.

8. Boiler where in hot gases flow through the tube surrounded by water is called as:

   a) Water tube boiler b) Tube in water boiler

   c) Fire tube boiler d) Gas water boiler

9. Which of the following is a contact type heat exchanger?

a) Scraped surface heat exchanger b) Plate heat exchanger

c) Tubular heat exchanger d) Steam injection heat exchanger.

10. Drying rate curve is

a) Rate of moisture removal Vs average moisture content

b) Rate of change of moisture Vs drying time

c) Drying temperature Vs average moisture content

d) Sample weight Vs average moisture content

(10 x 1 = 10 Marks)

PART B (Short Answer Type)

Answer any ***five*** questions. Each question carries 2 marks.

11. What is Atomizer?
12. Give the Stephan Boltzmann equation and explain its components.
13. Name 4 refrigerants used for industrial application
14. How to calculate apparent viscosity
15. Briefly calculate HTST Pasteurization.
16. List out the components of evaporating system.
17. Differentiate single effect and multiple effect evaporators.

(5 x 2 = 10 Marks)

PART C (Short Essays Type)

Answer any ***six*** questions. Each question carries 5 marks.

18. Explain the working of Scraped surface Heat exchanger. Give its merits, demerits and application in food industry.
19. What is freezing rate? Explain freezing curve with diagram.
20. What is Fourier law of conduction? Explain its components.
21. List the important characteristics that are usually considered in the selection of refrigerant. Explain its importance.
22. Differentiate water tube boiler and fire tube boiler with neat sketch.
23. Explain Newton's law of viscosity. Give the classification of non Newtonian fluids with examples.
24. Draw a neat sketch and describe the working principle of spray dryer. Give its industrial application.

25. Explain the working of multiple effect evaporators. What is its advantage over single effect evaporator?

(6 x 5 = 30 Marks)

PART D (Essay Type)

Answer any ***two*** questions. Each question carries 15 marks.

26. Explain the classification of Heat exchangers. With the help of a neat sketch explain the functioning of plate heat exchanger. Give its industrial applications
27. What are refrigeration and its principle? Draw a neat ketch and describe the working of vapor compression refrigeration cycle. Give its industrial application
28. Draw a typical drying rate curve and explain different components of it. Draw a neat sketch and describe the functioning of a double drum drier. How this drier is better than single drum drier.
29. With the neat sketch describe the working of rising film evaporator. How this is different from falling effect evaporator? Give merits and demerits of these evaporators.

(2 x 15 = 30 Marks)

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