

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BVoc DEGREE EXAMINATION MAY 2022
(Fourth Semester)

Branch – FOOD PROCESSING TECHNOLOGY

FOOD ENGINEERING

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 1 = 10)

1. Identify the mode of heat transfer in baking bread
(i) Conduction (ii) Convection (iii) Radiation (iv) All of the above
2. Indicate the number of components in Vapor Compression Refrigeration Cycle
(i) 4 (ii) 3 (iii) 5 (iv) 2
3. What is the Falling film evaporator otherwise known as?
(i) Vertical shell and tube heat exchangers (ii) Tube heat exchangers
(iii) Filmvap exchangers (iv) Coil heat exchangers
4. Crystals that grow more slowly, tend to be -----
(i) Saturated (ii) Optimum (iii) Larger (iv) Smaller
5. State the working principle of gyratory crusher
(i) Impact (ii) Crushing (iii) Gravity (iv) Rolling
6. What is the cold source in a Cryogenic Grinder system?
(i) Liquid nitrogen (ii) Liquid CO₂ (iii) Nitrogen (iv) CO₂
7. Which mixer is used for liquid-liquid mixing.
(i) Pasteurizer (ii) Homogeniser (iii) Blender (iv) Ribbon mixer
8. Name the process of lowering the pressure in the column above the solvent to less than the vapor pressure of the mixture.
(i) Evaporation (ii) Distillation (iii) Homogenization (iv) Vacuum distillation
9. With increasing layer thickness, the flow resistance of the filter cake -----
(i) Falls (ii) Constant (iii) Increases (iv) Decreases
10. Name the machine that separates two mixed substances of different density
(i) Centrifugal separator (ii) Distillation unit
(iii) Gravity separator (iv) Purifier

SECTION - B (35 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 7 = 35)

- 11 a. Outline the vapour compression cycle with a neat sketch.
OR
- b. Compare and contrast conduction and convection modes of heat transfer. Give their applications in food industry.
- 12 a. Explain the principle, construction and working of a Falling film evaporator.

OR

Cont...

- b. Develop the construction and operation of Swenson-walker vacuum crystallizer.
- 13a. State the laws and formulae governing size reduction.
OR
- b. Summarise the working principle and operation of rolling compression mill.
- 14a. Describe the liquid mixers in food industry with neat sketch.
OR
- b. Differentiate between flash and differential distillation. Give the applications of distillation in food processing.
- 15a. Bring out the different types of filters.
OR
- b. Define Stoke's law. Apply the principle in cyclone separators.

SECTION - C (30 Marks)

Answer any **THREE** Questions

ALL Questions Carry EQUAL Marks (3 x 10 = 30)

16. Elucidate on parallel flow and counter flow heat exchangers with suitable diagrams.
17. Enunciate the types of evaporators. Explain the construction, working principle and operation of Multiple feed evaporator with neat sketch.
18. Highlight the design and operation of cryogrinding equipment with neat diagram.
19. Define rate of extraction. Analyse on basket extractor with advantages and disadvantages.
20. Examine the working of rotary vacuum filter with neat diagram.

Z-Z-Z

END