NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF HEALTH, APPLIED SCIENCES AND NATURAL RESOURCES

DEPARTMENT OF HEALTH SCIENCES

QUALIFICATION : BACHELOR OF HUMAN NUTRITION	
QUALIFICATION CODE: 08BOHN	**LEVEL:** 7
COURSE NAME: FOOD PROCESSING AND PRESERVATION	**COURSE CODE**: FPC721S
SESSION: JANUARY 2023	**PAPER:** THEORY
DURATION: 3 HOURS	**MARKS:** 100

SUPPLEMENTARY/SECOND OPPORTUNITY QUESTION PAPER	
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MODERATOR:	DR FRANCIS CHIKUSE

INSTRUCTIONS
1. Answer ALL the questions.
2. Write clearly and neatly.
3. Number the answers clearly.

PERMISSIBLE MATERIALS
Scientific calculator

THIS QUESTION PAPER CONSISTS OF 3 PAGES (Including this front page)

SECTION A

QUESTION 1 (14 MARKS)

1.1 Explain the following terms and concepts:

    1.1.1 Energy balance states (2)

    1.1.2 Pasteurization (2)

    1.1.3 Specific gravity (2)

    1.1.4 Intellectual property (2)

    1.1.5 Density (2)

    1.1.6 Dry cleaning (2)

    1.1.7 Steady-state conduction (2)

QUESTION 2 (20 MARKS)

2.1 Write short notes about the following words.

    2.1.1 Compressible fluids (2)

    2.1.2 Incompressible fluids (2)

    2.1.3 Dispersed phase (1)

    2.1.4 Continuous phase (1)

2.2 Explain how the following principles can be used in the preservation of fruits and vegetables.

    2.2.1 Use of heat: (2)

    2.2.2 Reduce water activity (Aw): (2)

    2.2.3 Use of acidity: (2)

    2.2.4 Sugar/salt concentration: (2)

    2.2.5 Use of irradiation: (2)

2.3 Briefly discuss any two (2) types of shelf-life tests. (4)

SECTION B

QUESTION 3 (34 MARKS)

3.1 A Final dough solution has a density of 45 kg/ m³ and flows from a mixing tank at 2500 Pa through a horizontal pipe 40 mm in radius at a flow rate of 7.8 ×10⁻³ m/s. The size of the pipe reduces to 20 mm in radius. Calculate the new pressure in the pipe. (9)

$$P1/P1 + V12/2 + Z1g = P2/P2 + V22/2 + Z2g$$

Where P (Pa) = the pressure, p (kg/m³) = the fluid density, g (= 9.81ms¹) = acceleration due to gravity, v (m s¹) = the velocity of the fluid and z (m) = the height.

3.2 What is the objective of size reduction in food processing. (3)

3.3 Enumerate three (3) types of equipment used for homogenisers. (3)

3.4 Enumerate three (3) types of equipment used for dry-cleaning. (3)

3.5 Briefly discuss the factors to consider when designing and selecting food processing equipment. (5)

3.6 Outline the benefits of blanching food. (3)

3.7 Explain why it's important to have a monitoring procedure in your HACCP (Hazard Analysis Critical Control Points) system. (3)

3.8 Outline five (5) factors affecting the shelf-life test. (5)

QUESTION 4 (32 MARKS)

4.1 Distinguish between the following set of concepts

    4.1.1 Sorting and grading. (4)

    4.1.2 Mixing and forming. (4)

    4.1.3 Primary and secondary processing. (4)

4.2 Describe any six (6) different types of non-Newtonian fluids. (12)

4.3 Explain any four (4) types of intellectual property. (8)

GOOD LUCK!!!