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FINAL EXAMINATION

COURSE NAME : INTRODUCTION TO FOOD SCIENCE
COURSE CODE : DFM3043
EXAMINATION : DECEMBER 2022
DURATION : 3 HOURS

INSTRUCTION TO CANDIDATES

- 1 This question paper consists of **FOUR (4)** parts :
 - PART A (20 Marks)
 - PART B (20 Marks)
 - PART C (40 Marks)
 - PART D (20 Marks)
- 2 Candidates are not allowed to bring any material to examination room except with the permission from the invigilator.
- 3 Please check to make sure that this examination pack consist of:
 - i. The Question Paper
 - ii. An Objective Answer Paper
 - iii. An Answering Booklet

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO

This examination paper consists of 12 printed pages including front page

PART A

This part contains of TWENTY (20) multiple questions.

Answer ALL in Objective Answer Paper.

1. Food science is a study concerned with all technical aspects of food. Begins with _____, _____, preparing, evaluating and utilization using food.
 - A smashing, breaking
 - B producing, processing
 - C eradicating, eliminating
 - D pulverizing, dismantling

2. Classification foods by origin is derived from _____.
 - A Plants and animals.
 - B Vitamins and minerals.
 - C Chemical and biological.
 - D Carbohydrates and proteins.

3.

'Anything solid or liquid which when swallowed, digested and assimilated nourishes the body.'

Statement 1

Statement 1 explained the definition of _____.

- A food
- B health
- C science
- D nutrition

4. Which of the following is the classification of foods by chemical?

- i. Fats
- ii. Plants
- iii. Proteins
- iv. Vitamins

- A i, ii
- B iii, iv
- C i, iii, iv
- D ii, iii, iv

5. What is the foods for energy supplying?

- A Milk, meat and poultry.
- B Sugars, cereal and roots.
- C Vegetables, fruit and milk.
- D Spices, nuts and oil seeds.

6. Which of the followings is macronutrients?

- A Weight
- B Minerals
- C Proteins
- D Vitamins

7. What is the source of most carbohydrate?
- A Fats.
 - B Plants.
 - C Mineral.
 - D Animals.
8. Gelatinization occurs when starch in solution is _____.
- A froze
 - B heated
 - C thawed
 - D reduced
9. As sugar content increases in baked goods, browning increases. This is an example of which function of sugar?
- A Stabilizer.
 - B Gelatinization.
 - C Crystallization.
 - D Caramelization.
10. Lactose is composed of _____.
- A glucose + glucose
 - B glucose + sucrose
 - C glucose + fructose
 - D glucose + galactose

11. How many sugar units make up monosaccharides?

- A One (1).
- B Two (2).
- C Three (3)
- D Seven (7)

12. What is the chemical composition of water?

- A One (1) carbon + two (2) oxygen = CO₂
- B Two (2) hydrogen + one (1) oxygen = H₂O
- C Two (2) hydrogen + two (2) oxygen = H₂O₂
- D One (1) nitrogen + three (3) hydrogen = NH₃

13. What does hydrated mean?

- A Full of water.
- B Free of water.
- C Anything that makes a substance impure.
- D When your body lets you know you need water.

14. When water continues to boil, the temperature will _____.

- A slowly goes down
- B remains constant
- C slowly goes higher
- D rapidly goes higher

15. What is an example of colloidal dispersion?
- A Gelatin.
 - B Salt water.
 - C Sugar water.
 - D Mayonnaise.
16. Which one is a bad effect of a food additive when taken excessively?
- A Rashes.
 - B Anxiety.
 - C Obesity.
 - D Stunted growth.
17. What type of selected preservatives that is used for meat curing?
- A Tartaric acid.
 - B Benzoic acid.
 - C Sodium nitrate.
 - D Sulphur dioxide.
18. These are methods of food preservation, **except**.
- A Drying.
 - B Freezing.
 - C Adding water.
 - D Fermentation.

19. What is the importance of food preservative?

- A Fight spoilage.
- B Improve taste.
- C Enhance flavor.
- D Minimize lifespan.

20. Which preservative method is used to remove the moisture present on the food?

- A Curing.
- B Drying.
- C Pickling.
- D Freezing.

[20 MARKS]

PART B

This part contains of TWENTY (20) fill in the blanks questions.

Answer ALL in questions in Answer Booklet.

SALT	MICROBIAL	DENATURATION	FLAVOUR	CARAMELIZATION
30%	LECITHIN	BLEACHING	RED	OXYGEN
SUGAR	AMYLOSE	SEQUESTRANTS	TEMPERATURE	SHARP
SINGLE	DRYING	SOLUBILITY	PASTEURIZATION	QUALITY
65%	SHELF LIFE	DECREASE	BROWNING	CARBON DIOXIDE

1. About _____ of the foods in our diet consist of carbohydrates.
2. In plants, energy from the sun is used to convert _____ and water into the carbohydrate glucose
3. The term 'saccharides' in classification of carbohydrates is another name for _____.
4. Monosaccharides contain _____ carbon chain and are classified on the basis of number of carbon atoms.
5. There are two forms of starch: _____ and amylopectin.
6. The process of _____ in the production or Millard reaction, sometimes called as browning reaction.
7. _____ is a process of breaking of hydrogen bonds and salt bridges.
8. Egg yolk comprises about _____ of the whole egg.

9. Functional roles of proteins in food is _____, thickening agent, emulsifiers / foaming agent and gelling agent.
10. Food additives is added to enhance the keeping of _____ or stability of food thereby reducing food wastage.
11. _____ is a chemical which combines with a substance and sets aside so it can be removed from food.
12. _____ agents are used in manufacturing of certain cheese to impart a white colour.
13. Benefits of preservation of food increase the _____ of the food.
14. Slow freezing also known as _____ freezing.
15. Using food additives could enhance the _____ in foods without imparting their own originality.
16. In _____, most organisms are killed during heating. A few survive and hence the growth must be inhibited by low temperature.
17. Prevention or delay _____ decomposition is known as principals of food preservation.
18. Adding _____ into baked goods facilitates in machining of dough and improves resulting bread appearances.
19. _____ method happens when the food is exposed to sunlight or subjected to dehydration.
20. _____ is a good natural preservative, and it is used with other spices in pickling.

[20 MARKS]

PART C

This part contains of **TEN (10)** short structured questions.
Answer ALL in Answer Booklet.

QUESTION 1

Identify **three (3)** dispersing medium for water.

(3 marks)

QUESTION 2

Define the following terms:

- i. Evaporation
- ii. Condensation

(2 marks)

QUESTION 3

Discuss **three (3)** functions of water in food.

(6 marks)

QUESTION 4

Explain and illustrate the chemical composition of water.

(4 marks)

QUESTION 5

Explain **three (3)** types of additives.

(6 marks)

QUESTION 6

Explain the definition of food additives.

(2 marks)

QUESTION 7

Identify three (3) classification of food additives.

(3 marks)

QUESTION 8

Discuss three (3) examples of selected preservatives and its functions.

(6 marks)

QUESTION 9

Explain two (2) principles of food preservation.

(4 marks)

QUESTION 10

Analyze two (2) methods for pasteurization

(4 marks)

[40 MARKS]

PART D

This part contains of **TWO (2)** long structured questions.

Answer ALL in Answer Booklet.

QUESTION 1

Fats contribute to the tenderness and flakiness of pastry. Pure fats such as shortening and lard, produce flakier pastry than those containing water such as butter. Pastry is often trade-off between flavor and texture, much which comes from the fat in the recipe.

Based on the statement above, explain the definition of tenderness and explain **four (4)** factors affecting tenderness and flakiness of a product.

(10 marks)

QUESTION 2

Food preservation is a process to prevent deterioration and spoilage of food. Using thermal preservation method employs heat to make food safe for consumption and/or extend shelf-life by reducing or eliminating microbiological contamination (pathogens or spoilage) and enzymatic activity of the food.

Based on the statement above, briefly analyze **five (5)** thermal preservation methods

(10 marks)

[20 MARKS]

END OF QUESTION PAPER