

UNIVERSITY OF RUHUNA

BACHELOR OF SCIENCE (SPECIAL) DEGREE LEVEL I (SEMESTER I)
EXAMINATION- JULY 2016

Subject : Botany
Course Unit : Food Technology - BOT 4092
Time : Two hours

Index No. :

Answer FOUR questions ONLY including question NO.1 and No. 5.

(1) Answer all questions in Part I and II below

Part 1: Select most suitable answer from given *a, b, c* and *d*

(16 Marks)

- i) ----- is not a reason for food spoilage.
a). Oxygen
b). Fungus
c). Bacteria
d). Smoke
- ii) Who is the founder of "Canning" technology?
a). Louis Pasteur
b). Albert Einstein
c). Nicholas Appert
d). Peter Durand
- iii) Which of the following is the cost effective method of preservation of food?
a). Caning
b). Radiation
c). Sun Drying
d). Freezing
- iv) ----- is not used for fruit ripening.
a). Ethephon
b). Calcium carbide
c). Ethylene
d). Magnesium Carbide
- v) Packaging and labeling of food do not.....
a). Provide safety
b). Transfer information
c). Attract customers
d). Eliminate microbes

vi) A student mixed a 0.1% amylase solution with a 1% starch solution. He performed a number of food tests on the mixture immediately after mixing and obtained the following results:

Iodine test	Biuret test	Benedict's test
+	+	-

(Key: + positive result, - negative result)

If he repeated the food tests on the mixture after 10 minutes later, what would be the possible results?

	Iodine test	Biuret test	Benedict's test
a).	+	+	+
b).	-	+	-
c).	-	-	+
d).	+	-	-

vii) Which of the following is correct?

- a). Drying food eliminates microbes from foods
- b). Blanching fruits keeps away from browning
- c). Irradiated foods contains no microbes
- d). In pasteurization of milk, high temperature is applied for longer time

viii) When considering the food safety, how many times can you reheat leftovers?

- a). As many times as you like
- b). Four times
- c). Twice
- d). Once

Part II : Use given spaces to provide answers for the question from " a" to "i"

a) Explain briefly the mechanism of browning in cut fruits. (10 marks)

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b) What are the two forms of Non-enzymatic browning ? (05 marks)

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- c) Giving an example, explain the importance of one of the above in “ b” in food industry. (10 marks)

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- d) Name three commonly used anti-browning agents (06 marks)

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- e) What do you mean by “*recognition threshold concentration*” of a food? (05 marks)

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- f) List the steps you would follow to find the recognition threshold concentration for a given series of sucrose solution. (10 marks)

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- g) A slide was prepared with a film/smear (area of 2cm^2) using $1\ \mu\text{l}$ of 10^{-1} solution of a food contain dry egg. The number of microorganisms in the film under the high power of the microscope was observed in three field views. The following table shows the observed number of microorganisms in three field views.

Field View	No. of observed microorganisms
1	64
2	72
3	58

Calculate the number of microorganisms present in 1 ml of the given solution. (15 marks)
 (Diameter of the high power = 0.35mm)

h) You are provided with two protein solutions: Tyrosine, cysteine and a starch solution. If necessary reagents are available with you. describe how you identify above solutions.

(15 marks)

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i) If you are given some biscuits, what are the test you would follow to identify the major nutritional components of them.

(8 marks)

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- 2) i) Differentiate food spoilage and food poisoning. (10 marks)
- ii) Describe separately the causes of food spoilage and food poisoning. (30 marks)
- iii) List the measures you take during harvesting, storing, transporting, shopping to minimize fruit and vegetable spoilage. (20 marks)
- iv) How do you enumerate the microorganisms present in a spoiled packet of lunch? (15 marks)
- v) Discuss the merits and demerits of use of plastic crates for transporting fruits and vegetables in the aim of minimizing the spoilage. (25 marks)
- 3) i) Explain briefly the necessity of food preservation. (30 marks)
- ii) List the different methods of food preservation. (20 marks)
- iii) Compare merits and demerits of sun drying of foods? (25 marks)
- iv) List the major steps in canning of food. (15 marks)
- v) What are the risks of using canned food? (10 marks)
- 4) Write short notes on the following; (100 marks)
- i) Packaging and labeling of foods
- ii) Post-harvest losses of vegetable and fruits in Sri Lanka
- iii) Merits of use of transgenic plants and animals in food industry
- 5) i). What is "food adulteration" and "food adulterant"? (12 marks)
- ii) Explain why foods are adulterated. (20 marks)
- iii) What are the negative impacts of food adulteration? (10 marks)
- iv) List five adulterated foods and their adulterants commonly found in shops/ market. (10 marks)
- v) Give suggestions to avoid food adulteration. (28 marks)
- vi) Briefly explain the auto action of fruit ripening. (20 marks)