Uva Wellassa University of Sri Lanka
Faculty of Science and Technology
Department of Science and Technology
400 level 1st Semester Examination – June / July 2016
SCT 417-2 Advanced Bioprocess and Food Science Laboratory

Uva Wellassa University

Instructions to candidates
Duration: 02 hour
Number of questions: 4 Structured Essay
Mark allocation: 100 mark
Answer all questions

Index No:

1.) Three chocolate samples coded as 101, 302 and 502 are given to conduct the sensory analysis. Two of these samples are identical, one is different. Taste the samples and answer the given questions.

a) What is the odd sample?

..... (02 marks)

b) Identify the type of discrimination test performed in above analysis.

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(02 marks)

c) State the sensory attribute differences between the identical samples and the odd sample.

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(05 marks)

d) Write four factors that have being considered during the sample serving for the present sensory analysis.

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(04 marks)

8.0

2.) a) You are given with a sample X. Measure and calculate the iodine concentration in X using Z as the titrant.

$$\text{mg/kg (ppm) iodine} = \frac{\text{titration volume in mL} \times 21.15 \times \text{Normality of Z} \times 1000}{\text{X sample weight in grams}}$$

(10 marks)

b.) Identify solution Z. ..... (2 mark)

c.) Why do we need to do this reaction under acidic conditions?

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(3 marks)

d.) Why do we need to add KI solution?

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(3 marks)

e.) Which form of iodine are you titrating with Z? .....(2 marks)

f.) What is the colour change observed during the titration?

.....(2 marks)

g.) Write the balance equations for the reactions occurring during the above process.

(9 marks)

3. a) List six types of dyes that are approved for food by Food and Drug Administration (FDA).

i)..... ii).....

iii)..... iv).....

v)..... vi).....

(06 marks)

b) You are given with a vegetable extract (ℙ). Run a 'Thin Layer Chromatograph (TLC)' using hexane:ethyl acetate 6:4 solvent system and calculate the Rf value/s for the colouring pigment/s. Write the equation to calculate the R_f values. (Circle your pigment spot/s in the TLC plate with a pencil and paste the TLC plate on to the exam paper.)

(07 marks)

c) What is the basis of separation used in TLC?

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(7 marks)

4. (A.)

i.) What are the two predominant enzymes in honey.

S..... T..... (2 marks)

ii.) What are the chemical reactions catalyzed by these two enzymes.

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(6 marks)

iii.) Which enzyme uses to measure the quality of honey (S or T)? ..... (2 marks)

iv.) What's the rationale behind using the above mentioned enzyme to determine the quality of honey?

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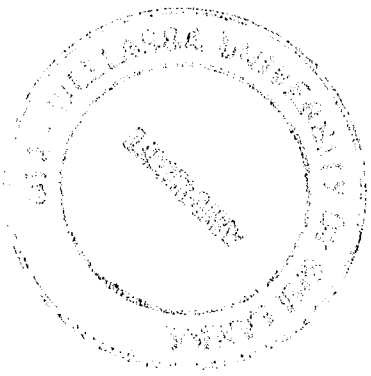
(8 marl

(B.)

i.) Briefly describe the jam production process.

(15 marl



ii.) Why the pectin content of fruits is important for the production of jam?

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(3 marks)