

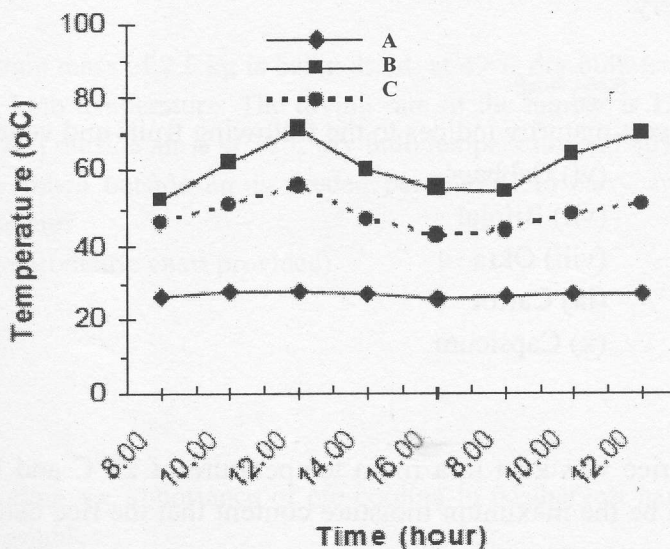
EASTERN UNIVERSITY, SRILANKA
THIRD YEAR FIRST SEMESTER EXAMINATION IN AGRICULTURE 2012/2013
(October – 2015)
Special Repeat Examination

AE 3101 – POSTHARVEST TECHNOLOGY (2:20/20)
Practical Examination

Time: Two hours

Answer all questions

01. The following observation was obtained from a drying experiment of cashew nuts in a solar dryer. Answer the following questions based on the figure given below.



- (i) Name the three different types of temperatures A, B and C which were recorded in the experiment.
- (ii) Name the locations to place the thermometers in the dryer to record A, B and C.
- (iii) Define the experimental period (drying period).
- (iv) What is the reason for greater values of B?
- (v) How will you determine the Relative Humidity (RH) of heated air?

02. A bin of paddy with the weight of 1650 kg was cleaned and it was found that the paddy contained 12.67 kg of chaff, 41.25 kg of immature grains, 4.95 kg of stones and 16.5 kg of weed seeds. During milling, the de hulling operation yielded 1336.5kg of brown rice. The brown rice was then polished which resulted in 140.25 kg of bran and 303.6 kg of broken rice. Finally the milled rice was graded and the head rice was separated. The

polished rice contained 36 paddy grains per kg of polished rice. It was also found to have 24.75 kg of damaged grains in the paddy mass.

Determine the following in the paddy mass:

1. Percentage of chaff
2. Percentage of dockage
3. Percentage of materials other than grains
4. Percentage of immature grains
5. Percentage of damaged grains
6. Total rice yield
7. Head rice yield
8. Percentage of broken rice
9. Polishing degree
10. Milling recovery

03. Give possible harvest maturity indices to the following fruits and vegetables.

- | | |
|------------------|---------------|
| (i) Passion | (vi) Cabbage |
| (ii) Mango | (vii) Brinjal |
| (iii) Banana | (viii) Okra |
| (iv) Pomegranate | (ix) Carrot |
| (v) Papaw | (x) Capsicum |

04. A bag of milled rice was kept in a room temperature of 27°C and RH of 80% for few days. What could be the maximum moisture content that the rice can reach by absorbing moisture from the environment?

Parameters of the Henderson's equation, 'C' and 'n' for paddy are 1.62×10^{-5} and 2.02 respectively.

Henderson's Equation

$$1 - RH = e^{-CTM^n}$$

Where,

RH – Relative Humidity in decimal

C, n – Grain empirical constants

M – Equilibrium Moisture Content (%)

T – Absolute Temperature (K)

e – Natural log
