THE COUNCIL OF COMMUNITY COLLEGES OF JAMAICA

ASSOCIATE OF SCIENCE EXAMINATION

SEMESTER III – 2013 AUGUST

PROGRAMMES:	**HOSPITALITY AND TOURISM MANAGEMENT**
COURSE NAME:	**APPLIED MATHEMATICS FOR HOSPITALITY AND TOURISM**
CODE :	**(MATH1205)**
YEAR GROUP:	**ONE**
DATE:	**FRIDAY, 2013 AUGUST 23**
TIME:	**1:00 P.M. – 4:00 P.M.**
DURATION:	**3 HOURS**
EXAMINATION TYPE:	**FINAL**

MATH1205

*This Examination paper has **6** pages*

INSTRUCTIONS:

SECTION B: ANSWER ANY <u>THREE (3)</u> QUESTIONS FROM THIS SECTION.

SECTION B

Instructions: Answer any THREE (3) questions from this section.

Question 1

a. Solve the pair of simultaneous equations ***(5 marks)***

$2x + 3y = 7$

$3x - 4y = 2$

b. Given the formula $T = \frac{x}{3} - 8$ Find:

i. T when x = - 6 ***(2 marks)***

ii. x when t = 0 ***(2 marks)***

c. Divide $240 among A, B and C so that B gets twice as much as A, and C gets three times as much as A. ***(4 marks)***

d. Leon bought 12 lbs of yam at the Farmers' Market for $900.

i. Calculate the as-purchased cost per pound for the yam ***(1 mark)***

ii. After peeling and cleaning the usable portion of the yam weighed 11 lbs 6 ounces. Calculate the yield percent of the yam (to nearest percent) ***(3 marks)***

iii. Calculate the edible portion cost per pound (to the nearest cent) ***(3 marks)***

iv. Leon bought at a supermarket another 3.5 kilograms of the same type of yam for $565. Determine which of the two purchases was less costly ***(3 marks)***

v. Calculate (using the yield percent in part (ii) the edible portion quantity of the 3.5 kg. ***(2 marks)***

(Total 25 marks)

Question 2

a. At a bar the Jenny works $2700 weekly plus a 1.12% commission on total monthly sales. If the bar's total sales for March was $1.2 million. What were her total earnings for the corresponding month? ***(6 marks)***

b. What would be the cost price of an item whose selling price is $ 180 if a 35% profit was made? ***(5 marks)***

c. Nathan has a bag filled with mangoes if after giving away 8 mangoes he is left with 80%, how many mangoes were in the bag initially? ***(3 marks)***

d. At an industrial complex the basic week is 35 hours. Last week mark made $13,500 of which $3,000 was for overtime. ***(3 marks)***

e. Calculate mark's basic pay rate ***(5 marks)***

f. If over time is one and three quarters basic rate, how many overtime hours did he work? ***(3 marks)***

(Total 25 marks)

Question 3

a. Given that $n = 4, p = -3$ and $t = \frac{2}{3}$. Evaluate:

i. $2n + p$ ***(1 mark)***

ii. $\frac{1}{2}n - tp^2$ ***(2 marks)***

b. A teacher kept a record of the extent of lateness of 90 students in her class. The table below shows the distribution of the times, recorded to the nearest minute.

Length of time late (in minutes)	0	1	2	3	4	5	6	7
No of students	4	8	10	8	15	20	15	10

Determine the:

i. modal length of time of lateness ***(1 mark)***

ii. median length of time of lateness ***(3 marks)***

Calculate the:

iii. total time lost by all students ***(4 marks)***

iv. mean time lost by students ***(2 marks)***

A student from the class is picked at random. Calculate the probability that the length of time of the students lateness was:

v. exactly 5 minutes ***(1 mark)***

vi. greater than modal length of time late ***(2 marks)***

vii. Draw a frequency polygon to represent the distribution ***(4 marks)***

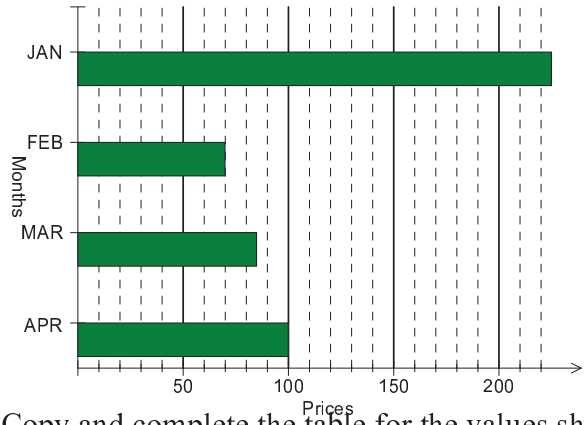
c. A sum of $25,000 is invested and earns interest compounded yearly at 8.5% p.a. Find the amount available after 5 years. ***(5 marks)***

(Total 25 marks)

Question 4

a. Expand and simplify as far as possible $3(2x-3)-(5-2x)$ ***(3 marks)***

b. Derrick runs a vegetable food store in Paine market. The bar graph below shows the changing price of his tomatoes over a four month period.



i. Copy and complete the table for the values shown on the graph ***(3 marks)***

	January	February	March	April
Price (in $ per lb)	225			

ii. Between which two months was the percentage increase in price the greatest? ***(4 marks)***

In January Derrick sold a quantity of 68 lbs of tomatoes and in February the quantity sold was 125 lbs. Calculate the:

iii. total revenue from tomatoes for these two months ***(2 marks)***

iv. average price of this quantity sold for the two months ***(2 marks)***

c. Janice wishes to buy on hire purchase a washing machine that has a cash price of $45,000. She may select one of two hire purchase plans offered as shown below

Plan A: The buyer makes no down payment but pays monthly installments of $2,187.50 for 36 months.

Plan B: The buyer makes a down payment of 25% of the cash price followed by 24 monthly instalments of 1,757.81.

Using Plan A:

i. Calculate the total amount paid at the end of the 36 months. ***(2 marks)***

ii. Express the difference between the cash price and the total amount on hire purchase as a percent of the cash price. ***(4 marks)***

Using Plan B, calculate the:

i. down payment amount ***(2 marks)***

ii. total amount paid after 24 months ***(3 marks)***

(Total 25 marks)

Question 5

a. The mean weight of 12 footballers is 172 pounds. Jim weighs 168 pounds but leaves the squad what is the new mean? ***(5 marks)***

b. Jim has been replaced by Kenny who weighs a whopping 210 pounds. Find the mean of the squad. ***(5 marks)***

Score	*frequency*
1	9
3	12
5	3
7	15
9	4

i. What is the modal score? ***(3 marks)***
ii. Calculate the mean. ***(5 marks)***
iii. Simplify $3xyz + 9zy - 21z$ ***(4 marks)***
iv. If $m = 3$ and $n = 2$. Evaluate $3mn - 4n + 6$ ***(3 marks)***

(Total 25 marks)

END OF EXAMINATION