

**SIR ARTHUR LEWIS COMMUNITY COLLEGE**  
**Division of Technical Education and Management Studies**

**EXAMINATION SESSION** : Semester One December 2012/2013 Examination

**TUTOR (S)** : Ms. M. Innocent, Mr. P. Etienne, Mr. V. Cazaubon, Mr. P. Jn. Francois, Ms. L. Phillips

**PROGRAMME TITLE** : Business Administration

**PROGRAMME CODE** : 3BS-ABA-AD

**COURSE TITLE** : Mathematics of Finance

**COURSE CODE** : MAT105

**DATE** : 14<sup>th</sup> December, 2012

**COMMENCEMENT TIME** : 1:00pm

**DURATION** : 2 Hours

**INVIGILATOR (S)** : **F. Joseph**, P. Wilson, J. Finisterre  
**L. S-Terrance**, U. Joseph  
**N. Hyacinth**, R. John Baptiste  
**I. Lambert**, A. Alcindor, G. Severin, S. Yarde  
**L. Philbert**, L. Ollivierre  
**A. Carraszana**, M. St. Clair

**ROOM (S)** : OTW-R8  
OTW-R3  
TRA-R3  
CEHI-1R-02  
TRA-R1  
CEHI-1R-04



M  
#14



**INSTRUCTIONS:**

**Section I – Compulsory Question**

**Section II - Answer four complete questions (all parts) from this section. Show all working clearly and neatly.**

**Borrowing or lending is prohibited.**

- Students are advised to use a pen to write this examination
- Write your ID number on *each* answer sheet
- All cell phones must be turned off during the examination
- **Note:** Bags, books as well as writing paper not given by the invigilator should be deposited at the front of the examination room or as otherwise indicated.
- Students **must** sign **IN** and **OUT** on the examination class list
- All examination papers **must** be turned in to the invigilator together with the answer sheets

## Section 1

### Question 1- Compulsory

1. The following information was obtained from the books of Business Deals Limited. Read the data carefully and then answer the questions that follow. Graph Sheets will be provided by the invigilators.

Sales per unit is \$25.00 and variable cost per unit \$15.00. Fixed costs per period total \$5,000.  
Capacity is 5000 units.

- a) Prepare an algebraic statement of
- i) The Revenue Function
  - ii) Cost Function
- (3 marks)
- b) Compute the break-even point
- i) in units
  - ii) as a percent of capacity
  - iii) in dollars
- (7 marks)
- c) Prepare a detailed break-even Chart
- (7 marks)
- d) What is the number of units that must be sold to generate a net income of \$4000?
- (3 marks)
- e) If fixed costs are reduced by \$2000, calculate the new break-even point in
- i) in units
  - ii) in dollars
- (3 marks)
- f) Using the original data determine net income at a sales volume of 30% of capacity.
- (2 marks)
- g) Using the original data, how many units must the firm produce if it wants to make a profit of \$2000.00?
- (3 marks)

**TOTAL (28 MARKS)**

## Section 11

**Instructions: Answer four complete questions (all parts) from this section. Show all working clearly and neatly.**

2. (a) Compute the exact interest for \$884.65 at 13.25% from May 20<sup>th</sup> 2003 to March 14<sup>th</sup> 2004  
(2 marks)
- (b) In how many years will \$500 accumulate to \$630 at 7.8% simple interest?  
(2 marks)
- (c) A loan payment of \$1450 was due 45 days ago and a payment of \$1200 is due in 60 days. What single payment made 30 days from now is required to settle the two payments if interest is 16% and the agreed focal date (comparison) is 30 days from now?  
(4 marks)
3. John Smith wants to have a total of \$4 000 in 2 years so he can put a hot tub on his deck. He finds a bank that pays 5% p.a. interest compounded monthly.
- (a) How much should John Smith put into his account today so that he will have \$4 000 in 2 years?  
(3 marks)
- (b) John Smith has only \$3 500 to invest but he still wants \$4 000 for a hot tub. He finds another bank offering 5.25% p.a. interest compounded quarterly. How long will he have to leave his money in the account to have \$4 000?  
(5 marks)
4. You intend to purchase a piece of land in three years, and decide to save \$3,000 at the end of every six months in a special savings account with an interest rate of 6% compounded semi-annually.
- (a) What amount would you have saved by the time you are ready to purchase the piece of land in three years?  
(3 marks)
- (b) How much of that amount was your contribution?  
(3 marks)
- (c) How much of that amount was interest?  
(2 marks)
5. You take a loan of \$60,000 to attend university at an interest rate of 13.5% compounded monthly.
- (a) What payment must be made at the end of each month if you are given 10 years to pay off the loan?  
(4 marks)
- (b) How many quarterly deposits of \$750 are required to save \$15,117.66 if interest is 12% compounded quarterly?  
(4 marks)
6. Mr Santa owes Mrs Nicholas three \$300 due in two years and \$800 due in 5 years. The two debts are to be settled by two equal payments in 1 ½ years and 4 years respectively. What is the size of each payment if interest is 12% compounded semi-annually. Use a focal (comparison) date of four years from now.  
(8 marks)
7. John bought a stove valued at \$2500. He paid 10% down and agreed to pay off the balance and interest at 12% p.a in 35 monthly settlements. Determine the payoff figure after he made the 15<sup>th</sup> payment. (Use sum of the digits method)  
(8 marks)
8. A ten-year promissory note for \$5000 dated May 1<sup>st</sup> 2000 bearing interest at 8% per annum compounded semi-annually was discounted on June 1, 2008 at 12% compounded monthly. Find the proceeds of the note.  
(8 marks)

**TOTAL (60 MARKS)**

**END OF EXAMINATION**