

CHRISTIAN SERVICE UNIVERSITY COLLEGE KUMASI

CSUC SCHOOL OF BUSINESS

DEPARTMENT OF ACCOUNTING & FINANCE

BACHELOR OF BUSINESS ADMINISTRATION End of Second Semester Examination, 2019/2020 Academic Year Level 100

CSBA 149: BUSINESS MATHEMATICS

JUNE, 2020

[70 marks]

INSTRUCTIONS TO CANDIDATES:

- **Answer TWO Questions (for 70 marks)** •
- Write your answer on the answer sheets provided •
- Your answer for EACH QUESTION should be FOUR (4) pages minimum. •
- Please present your answer in ESSAY form as much as possible unless otherwise stated. •
- Write your index number clearly at the top of every page of the answer sheets used.

Note: Marks will be awarded for:

- Introduction
- Content
- Conclusion
- **Evidence of Further Reading**
- Originality and Independence (Cheating would be penalized and integrity rewarded)
- Correct grammar, clarity of expression and logical presentation of facts.
- Answers to questions must be well referenced.

ANSWER ALL QUESTIONS IN SECTION A (50MARKS).

OUESTION 1

A. Given $X = \begin{pmatrix} 2 & 4 \\ 6 & 8 \end{pmatrix}$ $Y = \begin{pmatrix} -4 & -3 \\ 5 & 6 \end{pmatrix}$ a. Find XY (2marks) b. 3X + 2Y (2marks) c. det X (2marks) d. Inverse of X (2marks) e. / Y / (2marks)

B. Using matrix equation, solve 3pens and 2books cost 35cedis, while 7 such pens and 2books cost 55cedis. Find the cost of each pen and each book. (5marks)

C. If the volume V varies directly as the square of side (W). When V = 100, W = 5Find the variation constant,

Find the value of V if W = 10 (2marks) Find the value of W if V = 400 (3marks)

D. Let the revenue accrued from production of an item be $\mathbf{R} = \mathbf{x}^3 + 8\mathbf{x}^2 + 25$, where x is the quantity produced and C, the cost of production is $C = 3x^2 - 4x$.

Find a) the expression for profit (3marks)

b) the profit when 2 items produced (2marks)

E. The cost of carrying a car service in a garage is C180.00. The breakdown of cost into labour, parts, materials and overheads is in the ratio 4:3:2:3 respectively. Calculate the cost of

- i. Labour (1marks)
- ii. Overheads (1marks)
- iii. Parts (1marks)
- iv. Materials (2marks)

F. A man deposited 14100 at 8% per annum compound interest. If at the end of 4 years, he transfer the total amount to another bank offering 12% compound interest per annum.

i How much interest did he get at end of 7 years? (5marks)

ii Calculate the total amount he received at the end of seven years. (5marks)

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C	J	•	

Weight kg	50	54	62	65	72
No. of men	15	20	25	30	10

- a. Find the modal weight (2marks)
- b. Find the median weight (2marks)
- c. Calculate the mean(2marks)

(b). Using the quadratic formula, find the values of x in the equation X/2(x+1) = 2(x+1)/3 (4marks)

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SECTION B. ANSWER ONLY ONE (1) QUESTION FROM THIS PART. (20marks)

2. (a) A businessman deposited 50cedis in the bank at compound interest rate of 4% per annum in 3years.

i. what would be his future value if the rate is per annum, (2marks)

ii. What would be his future value if the rate is quarterly done, (2marks)

iii. Semi-annually done, (2marks)

iv. Daily done. (2marks)

b. In how many years will ¢100 amount ¢200 at 5% per annum. (2marks)

c. How much will ¢10,000 placed in a bank account paying 5% per year be worth compound annually. (2marks)

d. Nana kwaku buys 480 pineapples for ϕ 240 and sells all of them for ϕ 280.

Calculate

i. the profit (2marks)

ii. the profit percent (2marks)

e. In a swimming competition Peter swam 600 meters and Gabriel swam 2000 meters. What is the ratio of Peter to Gabriel? (2marks)

f. Find the value of x, if 3x: 5 = 3:1 (2marks)

QUESTION 3.

a) Determine the variation and the standard deviation and the coefficient of variation of the following (samples. (10marks)

 $i . 12 \ 6 \ 22 \ 31 \ 23 \ 13 \ 15 \ 17 \ 21$

ii. 0 -5 -3 6 4 -4 1 -5 0 3

b. The midterm test for statistics course has a time limit of 1 hour. However, like most statistics exams, this one was quite easy. To assess how easy, the professor recorded the amount of time taken by a sample of nine students to hand in their test papers. The times rounded to the nearest minutes are;

33 29 45 60 42 19 52 38 36. Compute the three statistics that measures the central tendency. (10marks)

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