



NATIONAL OPEN UNIVERSITY OF NIGERIA

91, Cadastral Zone, Nnamdi Azikiwe Express Way, Jabi-Abuja

FACULTY OF MANAGEMENT SCIENCES

2022_1 EXAMINATION

Course Code: BUS729

Time Allowed: 2 Hours

Course Title: Business Mathematics

Credit Unit: 2

Instructions: 1. Indicate your Matriculation Number clearly

2. Attempt Question 1 and any other 2 questions

3. Question 1 carries 30 marks while the other 2 questions carry 20marks each

4. Present all your points in coherent and orderly manner

QUESTIONS.

1. a) Solve for X and Y in the system of equations:

$$3X - 4Y = 13 \quad (1)$$

$$3Y + 2X = 3 \quad (2)$$

[15 marks]

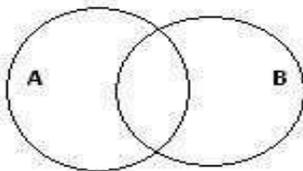
b) Find $\int e^{x/3} dx$ let $u = \frac{x}{3}, du = \frac{dx}{3}$

[7.5 marks]

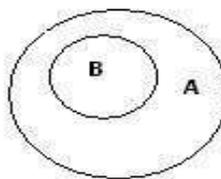
c) In a Venn diagram represents $A \subset B$ and, $A \neq B$,

[7.5 marks]

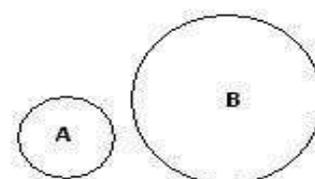
2. In the Venn diagram below, shade A Union B, that is, $A \cup B$



(a)



(b)



(c)

[10 marks]

2b). If 15 is $A = \{1,2,3,4\}$, $B = \{2,4,6,8\}$ and $C = \{3,4,5,6\}$.

Find (a) $A \cup B$ (b) $A \cup C$ (c) $B \cup C$ (d) $B \cup B$

[10 marks]

3. A number of families of a particular type were measured by the number of children they have, given the following frequency distribution:

Number of children: 0 1 2 3 4 5 or more

Number of families: 12 28 22 8 2 2

Use this information to calculate the (relative frequency) probability that another family of this type chosen at random will have:

(a) 2 children (b) 3 or more children (c) less than 2 children **[20 marks]**

4. State in words and then write in tabular form

1. $A = \{x \mid x^2 = 4^2\}$

2. $B = \{x \mid x - 2 = 5\}$ 17

3. $C = \{x \mid x \text{ is positive, } x \text{ is negative}\}$

4. $D = \{x \mid x \text{ is a letter in the word —correct}\}$ **[15 marks]**

b) Find $\int x \cos ax^2 dx$ **[5 marks]**

5. a) Discuss extensively the term sinking fund **[10 marks]**

b) Outline four (4) types /ways in which sinking fund operate. **[10 marks]**