NATIONAL OPEN UNIVERSITY OF NIGERIA

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

FACULTY OF MANAGEMENT SCIENCES

2023_1 POP 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 two (2) questions

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

4. Present all your points in coherent and orderly manner

QUESTIONS.

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

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

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

[15 marks]

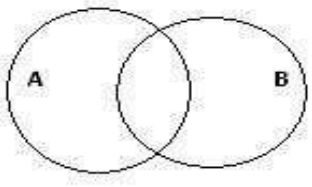
b) Find $\int e\, x/3dx$ let $u = \underline{x}$, $du = \underline{dx}$ **[7.5 marks]**

3 3

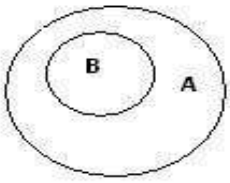
c) in a Venn diagram represents **[7.5 marks]**

$A \subset B$ and, $A \neq B$,

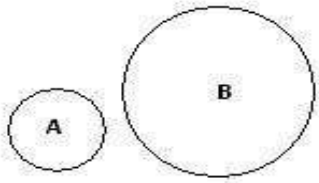
2. In the Venn diagram below, shade A Union B, that is, A∪B



(a)



(b)



(c)

[10 marks]

2b) Let A = {1,2,3,4}, B = {2,4,6,8} and C = {3,4,5,6}. Find

(a) A∪B, (b) A∪C, (c) B∪C, (d) B∪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} | x is positive, x is negative}
4. D = {x} | x is a letter in the word ―correct‖} **[15 marks]**

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

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

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