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| **SESSION** | **SEPTEMBER 2022** |
| **PROGRAM** | **BACHELOR of Computer applications (BcA)** |
| **SEMESTER** | **I** |
| **course CODE & NAME** | **Dca1103 – basic mathematics** |

**ASSIGNMENT Set-I**

**1(a). It is known that in a sports club, there are 1000 registered members. 60% of members play Tennis, 50% of members play Cricket, 70% of members play Football, 20% of members play Tennis and Cricket, 40% of members play Cricket and Football and 30% of members play Football and Tennis. If someone claimed that 20% of members play all the three sports, what is your opinion and why? [Use inclusion and exclusion principle to provide your opinion]**

**Sol:** **The total number of members who play both Tennis, Cricket and Football are 900.**

**Step-by-step explanation:**

**Given:-**

Total number of registered members **n(U) = 1000**

Members who play Tennis =**n(T) = 60% = 600**

Members who play Cricket = **n(C) = 50% = 500**

are 900.

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**(b). By using truth tables, check whether the propositions and are logically equivalent or not?**

**2(a). Modulo 18 as a group. Construct the multiplication table for G and find the inverse of each element of G.**

**(b). If for a right-angle triangle, for the acute angle, then, find the values for&and show that -**

**Sol:** **Given: sin θ = 12/13**

**To find: cos θ and tan θ**

 **(c). Find the value of the constant, for which, the following function is continuous**

**3(a). Differentiate the following function with respect to the variable.**

**Sol:**

**3(b). Evaluate the following definite integral**

## Sol: ∫02π​​xsinxdx

## =[−xcosx]02π​​+∫02π​​cosxdx

## =[−xcosx+sinx]02π​​

**ASSIGNMENT Set-I i**

**4(a). The differential equation can made exact by multiplying with integrating factor . Then find the relation between and**

**Sol:**

**4(b). Find one fourth roots of unity.**

**5(a). Solve the following system of equations by using the concept of matrices and determinants.**

## Sol: Given,

## 5x+7y+2=0⇒5x+7y=−2

## 4x+6y+3=0⇒4x+6y=−3

## we have,

## [

**5(b). Find whether the following series are convergent or divergent**

**6(a). Bag I contain 3 red and 4 black balls and Bag II contain 4 red and 5 black balls. One ball is transferred from Bag I to Bag II and then a ball is drawn from Bag II. The ball so drawn is found to be red. Find the probability that the transferred ball is black.**

## Sol: E1​=Ball transferred from Bag I to Bag II is red

E2​=Ball transferred from Bag I to Bag II is black

A=Ball drawn from Bag II is red in colour

P(E1​)=73​

P(E2​)=74​

P(A/E1​)=105​=21​

P(A/E2​)=104​=52​