

Enrollment No:- \_\_\_\_\_

Exam Seat No:- \_\_\_\_\_

# C.U.SHAH UNIVERSITY

Summer-2015

Subject Code: 4CS01IMT1

Subject Name: Mathematics

Course Name: B.Sc. (IT)

Date: 8/5/2015

Semester: I

Marks: 70

Time: 10:30 TO 01:30

## Instructions:

- 1) Attempt all Questions of both sections in same answer book/Supplementary.
- 2) Use of Programmable calculator & any other electronic instrument prohibited.
- 3) Instructions written on main answer book are strictly to be obeyed.
- 4) Draw neat diagrams & figures (if necessary) at right places.
- 5) Assume suitable & perfect data if needed.

Q1. Attempt following. (14)

1. What is empty set? (2)
2. What is complement of a set ? Explain with example. (2)
3. Define diagonal matrix with example. (2)
4. Define square matrix. (2)
5. Write a formula of compound interest. (2)
6.  $A \cup A' = \underline{\hspace{1cm}}$ ? (1)
7. Divide 500 into three person in the ratio 10:15:25 (3)

Attempt any four.

Q2. Attempt following. (14)

1.  $A = \{1,3,5,7,9\}$   $B = \{1,4,5,8\}$  and  $C = \{2,5,6,9\}$  , prove that-  
 $A \cap (B - C) = (A \cap B) - (A \cap C)$  (7)
2. If  $A = \{1,2\}$   $B = \{2,3\}$   $C = \{3,4\}$  , find  $(A \times B) \cup (A \times C)$  and  $(A \times B) \cap (A \times C)$  (7)

Q3. Attempt following. (14)

1.  $U = \{1,2,3,4,5,6\}$   $A = \{1,3,4\}$  and  $B = \{4,5\}$  , verify that-  
 $(A \cup B)' = A' \cap B'$  (7)
2. If  $A = \{a,b,c,d,e,f\}$   $B = \{a,e,i,o,u\}$   $C = \{m,n,o,p,q,r,s,t,u\}$  , find  $(A \cup B)$  and  $(A \cap B)$  and



$$(A \cup B \cup C) \text{ and } (A \cap B \cap C) \quad (7)$$

Q4. Attempt following. (14)

1. If  $A = \begin{bmatrix} 1 & 2 & 2 \\ 1 & 2 & 2 \\ 2 & 2 & 1 \end{bmatrix}$  find the value of  $A^2 - A + I$  (7)

2. If  $A = \begin{bmatrix} 5 & 7 \\ 4 & 5 \end{bmatrix}$  and  $B = \begin{bmatrix} 2 & 4 \\ 3 & 6 \end{bmatrix}$ , find the value of  $4A - 3B$ . (7)

Q5. Attempt following. (14)

1. If  $f(x) = 2x^2 - 4x + 5$ , find  $f(A)$  where  $A = \begin{bmatrix} 1 & 2 \\ 4 & -3 \end{bmatrix}$  (7)

1. If  $P = \begin{bmatrix} 1 & 3 \\ 2 & 4 \end{bmatrix}$  and  $p^2 + 2p + q = 0$ , find  $q$ . (7)

Q6. Attempt following. (14)

1. A man buys a cycle for Rs. 4000 and sells it at Rs. 5400. A person get a profit or loss .What is the Percentage of profit or loss? (7)

2. Find simple interest on Rs.8000 at the rate of 5% for 2 years . (7)

Q7. Attempt following. (14)

1. 5,6,8,11,15\_\_\_\_\_ and  
If ANSWER is coded like-CPUYGT , QUESTION is coded like\_\_\_\_\_ (7)

2. Pratik went 10 kms to the west from his house, then turned left and walked 20kms. He then turned East and walked 20kms and finally turning left covered 20 kms. How far was he from his house? (7)

Q8. Attempt following. (14)

1. Find the derivative of  $3/(2-5x)$  (7)

2. Find  $\int 1/(1-\cos x) dx$  (7)

