

Enrollment No:-_____

Exam Seat No:-_____

C.U.SHAH UNIVERSITY

Summer-2015

Subject Code: 4CS01IFM1 Subject Name: Fundamental Mathematics For Computer

Course Name: B.Sc. (IT)

Date: 7/5/2015

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 all questions. (14)

1. Define equivalent set with example. (2)
2. Define subset and power set of a set. (2)
3. Find the distance between the points (4,8) and (2,5). (2)
4. Find the slope of the line passing through the points (1,2) and (3,6). (2)
5. Define column matrix with example. (2)
6. Define symmetric matrix with example. (2)
7. Define unit circle. (2)

Attempt any four from Q-2 to Q-8.

Q2. Attempt following. (14)

1. If $A=\{1,5,10\}, B=\{1,3,4,6,11\}, C=\{2,4,6\}$ find $(A \cup B) \cap (A \cup C)$. (7)
2. If $A=\{1,2,3,4\}, B=\{3,4,5\}, C=\{1,3,5\}$, prove that-
 $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$ (7)

Q3. Attempt following. (14)

1. State and prove De Morgan's law. (7)
2. If $A=\{1,4\}$ and $B=\{1,2,5\}$, find $A \times B, B \times A, A \times A$. (7)

Q4. Attempt following. (14)

1. Find the equation of a line joining the points (2,3), (3,-5). (7)
2. Find the equation of a line having slope 2 and passing through the point (-3,5). (7)

Q5. Attempt following. (14)

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

Q6. Attempt following. (14)

1. For $0 < \theta < \pi$ draw graph of $\sin \theta$. (7)



2. Calculate $\frac{\operatorname{cosec} \frac{\pi}{3} \tan \frac{\pi}{3} \cot \frac{\pi}{6}}{\sec^2 \frac{\pi}{4} \cos \frac{\pi}{6}}$ (7)

Q7. Attempt following. (14)

1. Calculate $\int \left(x + \frac{1}{x}\right)^2 dx$ (7)

2. Calculate $\int \frac{x^3}{x^2+1} dx$ (7)

Q8. Attempt following. (14)

1. Differentiate $x^4 \sin x$. (7)

2. Differentiate $x^3 e^{\log x}$ (7)

