# lecture 1      "Discrete Structures"

MARKS   DISTRIBUTION      1-   Quizes  (from class Material) 15%.
                       (10 - 25)

$90 \times 3 = 270.$                  $[-1, 0]$

            2-   Sessional   $20\% \times 2$     $= 40\%.$

            3-   Final     $45\%$        $= \underline{45\%}$

                                        $\underline{100\%}.$

                Absolute Marking.

COMMON   MISTAKE

   1-    late Coming .          $90 \times 14 = \underline{626}$     $\underline{\text{logical Sense}}.$

   2-    Copy Closed .

   3-    bank benches .                 $\underline{576}$

   4-    Do not study from Soft
                ( Sahil    P22- 9141)

   MUST   DO

      1-     Book .     (Book Soft + Solution) .

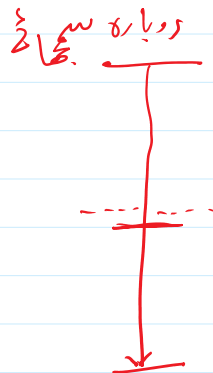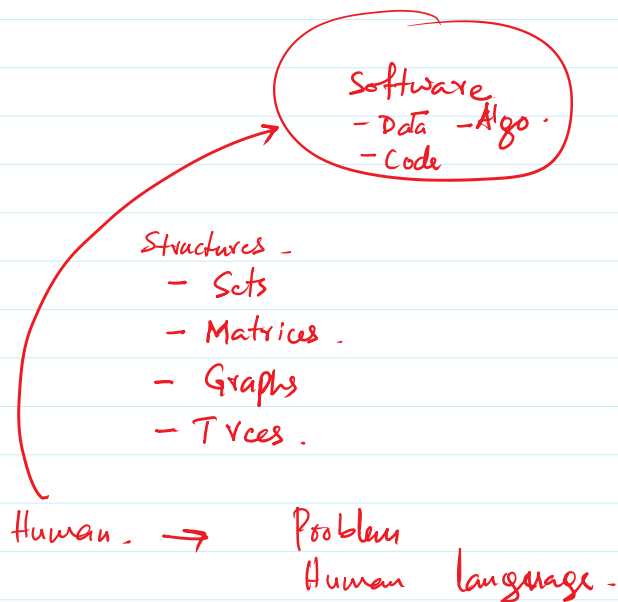Problem :-

           1-     Class                            دوران سے اینچ

           2-     Book

           3-     Online Course .

           4-     Google + Youtube + Chatgpt .

           5-     Friends .

           6-     My Self .

                   "Discrete Structures"
                   آپ آپ        سب کچھ

Software
- Data  - Algo.
- Code

Structures -
  - Sets
  - Matrices.
  - Graphs
  - T Vces.

Human.  →   Problem
            Human  language.

Uncertainty.  {
  " تم بارش ہو گی "        ①
  " میں کل ٹیسٹ میں پاس ہو جاؤں گا "   ②
  " وہ میرے خلاف بات کرے گا "    ③
}

Propositional  logic:

        Proposition:   It is  declarative  statement
  which  either  true  or  false  but  not  both.

        " Islamabad  is  the  Capital  of  Pakistan ". ✔
        "  what  is  the  time ". ✗
        X + 3 = 4.        ✗

Propositional  Variable :-        " It  is  raining ".
         Let    P =  " It  is  raining ".

OPERATIONS :-                            Syntax           Semantics.
     Negation :-       " Not "     ⌐      اصول لکھنے کا    مطلب

     truth table.           P | ⌐P | ⌐(⌐P).        $\sum_{i=1}^{n} \dfrac{(A_i)}{n}$    Central tendency.
                            _____
                            T | F |  T
                            F | T |  -

| p | ¬p | ¬(¬p) |
|---|----|-------|
| T | F | T |
| F | T | F |

¶3 Ex.    "It is raining"    Find Negation.

let  $p =$ "It is raining".

$\neg p =$ "It is not raining".

$$3 + 4 = 5$$

let  $p =$    $3 + 4 = 5$

$\neg p =$    $3 + 4 \neq 5$.

$\neg(=) = \neq$

$\neg(>) = \leq$

$\neg(\geqslant) = <$

$\neg(<) = \geqslant$

$\neg(\leqslant) = >$.