

lecture 1

"Discrete Structure"

Quizes:- class material 15%.

Sessions:- 2 20% x 2 = 40%.

Exams:- 1 45%.

Book:- Discrete Mathematics & its Application
with COMBINATORICS & Graph theory.

Kenneth H. Rosen.

INDIAN ADAPTATION.

7th EDITION.

COMMUNICATION:- SLACK.

TEACHABLE:- ONLINE VIDEOS. (COVID RECORDING).

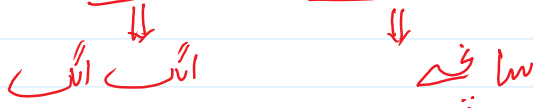
Six Step Procedure for learning.

- 1- Class
- 2- Book.
- 3- Online Videos.
- 4- Google + Youtube. + - - -
- 5- Friends
- 6- My self.



CR Muhammad Karif (P22-9307)

"Discrete Structure"



Opposite \Rightarrow Continuous.

"for shapping things".

Problem

structure . . .

Software
- Code - Algo -
- Data

Structure . . .
 - Sets
 - Matrices
 - Graphs
 - Trees

Human .

- Code - Algo -
 - Data

→ Human Language.

→ open ended (Uncertain).

"جن کا پی پی آر 22 ہے"

"وہ میری سہیلی ہے"

"ہاں بھئی ہے"

→ Propositional Logic:-

→ propositional statement or proposition .

A statement about the world which is .

Either true or false but not both .

"Islamabad is the capital of Pakistan" ✓

"What is the time" X

"It is raining" ✓

" $X + 3 = 5$ " X

Propositional Variable:- It will represent a proposition.

"It is raining"

let $p =$ "It is raining".

Negation:-

"T"

Not .

Syntax

X

mean .

Semantics.

P3/Ex3:-

Find the negation.

①

"Today is raining"

let $p =$ "Today is raining".

p	$\neg p$
T	F
F	T

①

Let $p = \text{"Today is raining"}$.
 $\neg p = \text{"Today is not raining"}$.
 $\neg(\neg p) = p = \text{"Today is raining"}$.

T	F
F	T

②

Let $p = a + 4 = 5$
 $\neg p = a + 4 \neq 5$.

$\neg(\neq) = =$
 $\neg(\neg) = \neg$
 $\neg(\neg) = \neg$
 $\neg(<) = >$
 $\neg(\leq) = >$

③

Let $p = a + 4 < 15$
 $\neg p = a + 4 \geq 15$

