Algo:
1. graph theke disilo.. BFS/DFS/TopologicalSort ei type er - mone nai - simple chilo
* adjacency matrix node draw graph
* TopologicalSort
* MST Kruskal
* MST Prim
* SP Dijkstra
* Floyd Warshall Algorithm: All-pairs Shortest-paths for Directed Graph
* Bellman-Ford Single-Source Shortest-Path algorithm

* Searching : Binary search Algorithm

* graph theory : Convex Hull

Sorting:
1. Merge sort er ekta simulation disilo oita mone ase
2. Quick sort er algo likhte disilo - most probably
* Insertion sort
* Selection sort
* Binary sort
* time complexity average case for quick sort. calculate pair wise comparision for worst case for 10 input.

* Ekta sorted array A[i], item i ke find out korte hobe. Binary Search diye korte hobe

AI:
1. A* nie ekta problem disilo
* alpha-bita pruning

Computer Architecture:
1. pipelining kemne kaj kore

Compiler And Automata Theory:
* Compiler Design - Phases of Compiler
Lexical Analysis > Syntax Analysis > Semantic Analysis > Intermediate Code Generation > Code Optimization > Code Generation > Machine

Dependent Code Optimizer
* automata theke porba NFA ar DFA er parthokko

* automata kemne design kore
* turing machine
A Turing machine is an abstract "machine" that manipulates symbols on a strip of tape according to a table of rules;
to be more exact, it is a mathematical model that defines such a device.
Despite the model's simplicity, given any computer algorithm,
a Turing machine can be constructed that is capable of simulating that algorithm's logic.
* cfg 0^n 1^2n

DS:

1. LinkedList er upor ekta problem chilo - NOt sure though: Middle element ber kora
2. Tree theke ekta besh interesting ques chilo: ekta tree er preorder aar post order traversal er result dewa chilo. apnake tree ta draw krte hobe
* collision detect and solution for hashing index.
* Diffarence between Stack & Queue

DataBase:

1. Query likhte disilo - ektu critical
2. B-tree theke ki jeno ekta ques krsilo
3. ekta choto ER diagram aakte hoisilo

* primary key vs unique key

* ACID (Atomicity, Consistency, Isolation, Durability)
* B trees vs B+ trees
* B trees vs Hashing Fastness
* 2 state lock in database transection
* Database Query

1 Animals: Id, name, ages, species, cid,kid
2 Cages: Id, size etc.
3 Keepers: Id, name, address

NB: cid = Cages_id, kid = Keepers_id

a. Find the animals which on same cage and age greater than Dog
b. Find the pair of animals which on same keepers.

* database normalization vs denormalization

Digital Logic Design:

* Draw a NAND gate using 4x1 MUX
* (a+b)'(a'+b')'
* implement 4*16 decoder with 2 3*8 decoder
* K-map simplification

Discrete Mathematics:

* (nxx)-nxx-xxxx n=1-9 x=0-9 find (nxx) for 40 millions
* if x+y >= 100 then x >= 50 or y >= 50 justify

ISD and Software Engineering:

1. kon ekta model jani disilo.. may be waterfall
2. ISD er kisu term er definition disilo jegula kokhno shuni nai

* Software Development Life Cycle [1][2]

* Design Pattern

* software validation & verification
Validation is the process of checking whether the specification captures the customer's needs
Verification is the process of checking that the software meets the specification

* alpha testing - beta testing

* Draw sequence diagram for login of an web portal
* collaboration diagram
* class diagram
* state diagram of a store system 'order' (SAD)
* include and extends in Usecase Diagram

Micro Processor and Microcontrollers:

* diagram with .i. program count .ii. instruction register
* micro processor: cache 3ns hard disk 10ns cache:hd hit ratio 0.9 total execution time

Networking:

1. IP address nie ekta simple ques chilo
https://technet.microsoft.com/en-us/library/cc940018.aspx
http://www.tutorialspoint.com/ipv4/ipv4_address_classes.htm

* What is NAT

* IP address a class A te koita host possible
* A class: 1-126 0 000 0001-0 111 1111
* B class: 128-191 10 00 0000-10 11 1111
* C class: 192-223 110 0 0000-110 1 1111
2. TCP aar UDP er difference
http://www.diffen.com/difference/TCP_vs_UDP
* describe a system that support tcp + udp facilities
* .i. get ip .ii. get all MAC .iii. check alive .iv. find domain ip: nslookup .v. hops to go to a domain

OS:

1. scheduling theke chilo - 2 ta scheduling die may be bolsilo konta better
* SJF, FCFS niye 2 ta problem chilo
2. thread vs process
* write-read problem [os locking]
* Virtual memory vs physical memory
* caches-vs-paging cache
* thread state

Object Oriented Programming:

* 4 major principles of Object-Oriented Programming

C++

* **copy constructor** niye code asche
* **operator overloading** : c++ code modification point p3 = p1(30,40) + p2(10,20) // p3(40,60)

JAVA

* Java তে date নিয়ে একটা প্রব্লেম দিয়েছে। একটা ক্লাস ডিফাইন করতে দিয়েছে যা একটা ডেইট ইনপুট
ekta class er object declare korte hobe. ekta constructor ditey hobe. class a constructor a 3 variable thakbe jeta inut neya jabe.

class define korbo long diffarence (date x). eder moddhe second diffarence
* **thread** declaration with two different style java
* **final** keyword in java

Structured Programming language:

C / C++
* Ekta c program a swap er code chilo. Sekhane ki vul chilo ber korte diyechilo. Ans: Call by value chilo, Call by references hobe
http://www.codingunit.com/c-tutorial-call-by-value-or-call-by-reference
* Fibonacci Number er code
* c++ **palindrome**
* c++ sum of digits of a number
* Find out the second Highest from a list of numbers
http://stackoverflow.com/questions/16225677/get-the-second-largest-number-in-a-list-in-linear-time