**OPERATING SYSTEM:-**

TLB\_hit\_time := TLB\_search\_time + memory\_access\_time

TLB\_miss\_time := TLB\_search\_time + memory\_access\_time + memory\_access\_time

Hit ratio = Total number of Hit Counts / Total number of Reference Counts

Effective Memory Access Time = p \* (page fault service time) + (1 - p) \* (Memory access time)

Effective access time = hit ratio \* time during hit + miss ratio \* time during miss

/\* Let P be the page fault rate OR probability that the page fault occurs \*/

MTTBF, the mean time between failures, is MTBF = MTTF + MTTR

**SOFTWARE ENGINEERING :-**

Cyclomatic complexity = E - N + P

V(G) = E - N + 2

V (G) = P + 1

Current Failure Intensity =

Initial Failure intensity X [ 1 – Experienced failures / Failures in infinite time ]

**FIRST PAPER:-**

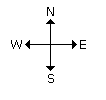
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CONTRADICTORY:- Both can not be true and both can not be false.

CONTRARY:- Both can be false. Both can not be true.

SUB CONTRARY:- Both can be true. Both can not be false.

IMPLICATION:- if A is true and I is false case only not possible.



**PROGRAMMING LANGUAGES:-**

Amdahl's Law:- Speedup(N) = 1/((1-p)+p/N);

Execution time after improvement = Execution time unaffected + Execution time affected / Amount of improvement;

**COMPUTER NETWORK:-**

**Shannon-Hartley Channel Capacity Theorem :-**

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**S / N** isSignal to noise ratio, B is Bandwidth.

**Nyquist Criteria for maximum data rate for noiseless channels**

C = 2 \* B \* log M

where C is the channel capacity in bits per second or data rate,

B is the maximum bandwidth allowed by the channel,

M is the number of different signaling values or symbols

log is to the base 2

The minimum Hamming distance is 2t + 1, the code can correct up to t errors.

For error detection, formula is t+1.

**RSA ALGORITHM:-**

\*) Encrypt Message E(s) = se mod n

\*) Find d, such that de % m = 1

\*) Decrypt Message E(s) = encryptedd mod n

-------------------------------------------------------------------------------

Transmission rate= frame rate \* number of bits in a slot

Maximum burst time = Capacity / ( Output rate-Arrival rate )

**DATA STRUCTURES AND ALGORITHM**

**Greedy Algorithm:-**

-Prim's, Kruskal

-Kruskal Algorithm O(E log V)

- Dijkstra Single Source Shortest Path Algorithm O(V2)

-Fractional Knapsack problem

-Huffman encoding Alg

**Dynamic Programming**

-Floyd Warshall Algorithm All pair shortest path (Time Complexity: O(V^3) )

-Bellman-Ford algorithm Single Source Shortest path O(V + VE + E) = O(VE).

**Radix Sort Time complexity:-**

Let there be d digits in input integers. b is the base for representing numbers, for example, for decimal system, b is 10.the set array {1, 2, ..., n}

Radix Sort takes O(d\*(n+b)) time

Total Number of Binary trees with n nodes is 