IMPORTANT QUESTIONS

MFCS

Unit – I

1. Well-ordering principle.*****

2. Let U = {1,2,3,4,5}, A = {1,5}, B = {1,2,3,4}, and C = {2,5}, determine A∩B and A∪(B∩C). (kind pf problems)

3. Fundamental theorem of arithmetic.*****

4. Tautology statements.*****

5. Quantifiers and types of quantifiers.

6. Conjunction, Disjunction, Implication and Bi-Implication (truth table)

Unit – II

1. If f(x) = x + 2 and g(x) = 2x then find (fog)(x) and (gof)(x). (kind of problems)

2. Partial Order Relation.*****

3. Pigeon – hole principle.

4. One-One function, Onto function, Bijective function.*****

5. Inverse function.

6. Inclusive and Exclusive function problems.

Unit – III

1. Write about various operations used on generating functions with examples.

2. Recurrence Relation and its types (theory).

3. First Order Recurrence Relations and Second Order Linear Homogenous Recurrence Relations (problems).*****

Unit – IV

1. Properties of binary operations with examples.*****

2. Show that in a group (G, *) for every a,b ∈ G, $(a*b)^2 = a^2 * b^2$ iff (G, *) is an abelian. (kind of problems)

3. Prove that the set of Z of all integers form an abelian group with respect to the binary operation '+' defined by a+b = a+b a,b ∈ Z.

4. Homomorphism, Epimorphism, Monomorphism, Isomorphism, Automorphism, Endomorphism

Unit – V

1. Graph and types of graphs. (Planar Graph)*****

2. Sub-graph and types of graphs.*****

3. Draw a picture of graph G=(V,E) where V={a,b,c,d,e} and E={{a,b},{b,c},{a,c},{a,d},{d,e}}, and state whether it is directed or non-directed and whether it is simple.

4. Prim's & Kruskal's algorithm.*****

5. Hamiltonian path & cycles.

6. Tree, its types, spanning tree, miniimum spanning tree. (rooted tree, binary tree)

DSC

Unit – I

1. Define Arrays, its types with example. *

2. String & String Operations.

3. Data types & Operators(input & output).*

4. Statements (conditional & looping) (BASIC PROGRAM ON PRINTING STARS(*)).

5. Decision making in C (switch case).

Unit – II

1. What is a pointer? (PROGRAM TO SWAP TWO NUMBERS & TO DEMONSTRATE POINTER TO POINTER).

2. Structure v/s Union*

3. What is Function? Define call by value and call by reference with example*

4. (optional) Storage classes & Preprocessor directives.

Unit – III

1. What is Linked List? Explain types of Linked List. (Also, program)(Representation)

2. Applications of Linked List.

(optional)

3. Operations & Applications of Stack & Queue.

Unit – IV

1. What is Binary Search Tree? Create a Binary Search Tree with some elements.*

2. What is Tree, Binary Tree? BT reprentation.

3. Binary Tree Traversal.*

(optional)

4. BFS & DFS Algorithms.

5. What is Graph & its represenation.

Unit – V

1. Linear Search v/s Binary Search (Algorithm).

2. What is Sorting? Explain types of sorting with example.

(optional)

3. Hashing & collision resolution techniques.

Computer Architecture

Unit – I

1. Complement & Fixed-Floating Point Representation*

2. Conversions & Binary Codes(gray, excess-3 ,.....).

3. BUS interconnection and structure.*

Unit – II

1. Write notes on how Register transfer takes place.

2. What is mean by Micro-operations? Explain its types.*

3. 4-bit Binary Adder & Subtractor*

4. 4-bit Arithmetic Circuit*   (3 or 4)

5. Describe about Computer Instructions.

6. Explain the flowchart for the phases of fetch, decode & execute.*

Unit – III

1. Describe the microinstruction format & sequencer with neat diagram.*

2. What notes on micro programmed control organization.

3. Write about Address Sequencing with help of Selection of address for Control Memory.

4. Types of addressing modes.

5. Write about Booth's Multiplication Algorithm with example.*

6. Flowchart for the selection of address for control memory.

Unit – IV

1. Write notes on auxiliary memory.*

2. Illustrate Associative Mapping (or) Illustrate Set-Associative Mapping*

3. Explain read and write operations in associative memory.

4. Explain memory hierarchy with help of diagram.

5. Define Cache Memory and explain all the 3 types of Mapping Procedures.

Unit – V

1. Write about Pipeline Processing? Explain its types.* (arithmetic)

2. Block diagram of computer with I/O Processor.

3. Direct Memory Access.*

4. RISC v/s CISC pipeline.*

5. Asynchronous data transfer (handshaking).

(optional)

6. Priority Interrupt & Programmed I/O.

Probability and Statistics

Unit – I

1. Define about Null Spaces & Column spaces*****

2. Define Vector Spaces and Subspaces.

3. Prove the set of solutions (x,y,z) of the equations $x + y + 2z = 0$ is a subspace of the space $R^3(R)$.

4. Write in detail about the Linearly Independent set and bases.

5. Given v_1 and v_2 in a vector space V, let $H = \text{span}\ \{v_1, v_2\}$ then show that H is a subspace of V.

6. Determine the set $\{v_1, v_2, v_3\}$ is linearly independent or dependent, where

$$v_1 = \begin{bmatrix} 1 \\ 0 \\ -3 \end{bmatrix}, v_2 = \begin{bmatrix} 3 \\ 1 \\ -4 \end{bmatrix} \text{ and } v_3 = \begin{bmatrix} -2 \\ -1 \\ 1 \end{bmatrix}$$

Unit – II

1. State and prove Baye's theorem.

2. What is Poisson Distribution & Normal Distribution? State its properties.

3. Normal Distribution problems.*****

4. What is Random Variable.

Unit – III

1. Define Sampling and types of Sampling.

2. Random Sampling v/s Non-Random Sampling.

3. t-test problems*****

4. Sample size

Unit – IV

1. What is Hypothesis? Explain its types.

2. z-test problems*****

Unit – V

1. What is Chi-Square? Explain its application and test statistics.

2. Chi-Square problems*****

3. Correlation and Regression Problems*****

Managerial Economics & Accountancy

Unit – I

1. Define Managerial Economics and write scope of managerial economics.

2. Risk v/s Uncertainity.*

3. Fundamental concepts, nature & principles of managerial economics.*

Unit – II

1. What is Law of Demand? Explain with help of a diagram.*

2. Types of Demand.

3. Exceptions, factors that influence, determinants of Demand.

4. Demand Forecasting.*

Unit – III

1. Break-Even Analysis.

2. Production Function*

3. Law of variable proportion.

4. BEP problems.

Unit – IV

1. What is mean by Working Capital? What are the determinants of Working Capital?

2. What is Capital Budegeting? Exaplin its methods.

3. Capital Budgeting problems.*

4. Working Capital Management.

Unit – V

1. Final Accounts (Trading a/c, P/L a/c & B/S).*

2. Define accounting and write objectives of accounting.

3. Ratio Analysis.

4. Explain the need for financial statements.