CASOT

Q.1 Attempt any 3 out of 5 questions - Module 2 - 6 marks each
(Each question will be based on different distribution or formula) i.e one question will be Baye's theorem, one will be poisson one willl be normal distribution one will be binomial, one will be exponential
Q.2 Attempt any 2 out of 3 questions - Module 1 - 6 marks each
(Questions on co-relation and regression)

Notes: Available on LMS
Module 1- https://lms-kjsce.somaiya.edu/mod/folder/view.php?id=59061
Module 2-
https://lms-kjsce.somaiya.edu/mod/folder/view.php?id=59058

ADC

Module 1: Amplitude Modulation and Demodulation

- -Basic block diagram of a communication system
- -Types of modulation and demodulation
- -Amplitude Modulation (AM) waveform, mathematical representation, spectrum, modulation index, and bandwidth
- -Demodulation techniques: practical diode detector
- -DSB-SC (Double Sideband Suppressed Carrier) system: Balanced modulator, Ring modulator, Demodulator
- -SSB (Single Sideband) system: Filter method, Phase shift method, Third method, concept of pilot carrier SSB, Demodulation techniques like Coherent detector and envelope detector; -Concept of VSB (Vestigial Sideband) and ISB (Independent Sideband)

Module 2: Angle Modulation and Demodulation

- -Angle Modulation: waveform, mathematical representation, modulation index, frequency and phase deviation, spectrum, bandwidth
- -Narrow Band FM (Frequency Modulation), Wide Band FM
- -FM (Frequency Modulation) system: FET reactance modulator, Armstrong's method, Noise triangle in FM, pre-emphasis, and de-emphasis
- -FM Demodulation techniques: Foster-Seeley discriminator, Ratio detector, FM demodulator using PLL (Phase-Locked Loop); Comparison between AM, FM, and PM (Phase Modulation).

Module 3: Radio Receivers

- -Limitations of TRF (Tuned Radio Frequency) receiver
- -Super-heterodyne receiver: characteristics, choice of intermediate frequency, image frequency

Notes: Available on LMS

https://lms-kjsce.somaiya.edu/course/view.php?id=9500

DBMS

Module 1: Introduction to Database Concepts and Systems

- - Purpose of Database Systems
- - DBMS (Database Management System) system architecture
- - Data Models and Data Independence
- - Database languages
- - Database Users and Administrator
- - Different types of Database Systems
- - Introduction to ER (Entity-Relationship) diagrams
- - Comparison between file systems and DBMS
- - Understanding Entities in the context of databases

Module 2: Database Models, SQL, and Relational Algebra

- - Database design phases
- - E-R (Entity-Relationship) Model
- - Constraints and E-R Diagrams
- - Extended E-R features
- - Relational model concepts and constraints
- - Relational Algebra: Unary, Binary, and Set theory relational operations
- - Data definition commands and attribute constraints
- - SQL (Structured Query Language) queries, including SET operations, Aggregate functions, Null Values, Nested subqueries, complex queries, Views
- - Data manipulation commands: Insert, Update, Joined relations
- - Integrity and security measures such as Domain constraints, Referential integrity, Triggers, and Security and Authorization in SQL.

{M1: Introduction
er diagram, basic defns , file systems vs DBMS
Entities , schema, (three schema architecture) differentiation between ....(theory) etc. 10marks

M2: Algebra (DBMS Algebra and relational algebra) etc .10 marks and SQl query

Notes: Available on LMS
https://lms-kjsce.somaiya.edu/mod/folder/view.php?id=58865

DM

M1: Set Theory

- Sets, Venn diagrams, Operations on Sets
- Laws of set theory, Power set, and Products
- Partitions of sets, The Principle of Inclusion and Exclusion

M2: Logic

- Propositions and logical operations, Truth tables
- Equivalence, Implications
- Laws of logic, Normal Forms
- Predicates and Quantifiers
- Mathematical Induction

M3: Relations, Digraphs

- Relations, Paths, and Digraphs
- Properties and types of binary relations
- Manipulation of relations, Closures, Warshall's algorithm
- Equivalence relations.

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Notes: Available on LMS

Module 1 https://lms-kjsce.somaiya.edu/mod/forum/discuss.php?d=8676
Module 2
https://lms-kjsce.somaiya.edu/mod/forum/discuss.php?d=8677
Module 3
https://lms-kjsce.somaiya.edu/mod/forum/discuss.php?d=8678

AOA

Here's a summary of the topics covered in each section:

Module 1

- Performance analysis, including space and time complexity
- Growth of function: Big-Oh, Omega, Theta Notation
- Analysis of insertion sort
- Solving recurrence problems using Substitution Method, Recursion Tree Method, Masters Method
- Introduction to randomized algorithms (self-learning topic)

Module 2

- Divide and Conquer Technique:
  - General method
  - Finding minimum and maximum algorithm and analysis
  - Analysis of Merge sort and Quick sort

- Greedy Technique:
  - General method
  - Knapsack problem
  - Minimum cost spanning trees: Kruskal's and Prim's algorithm
  - Single source shortest path algorithm

- Dyanmic Programming technique:
  -Traveling salesman problem, -Single source shortest path,

Notes: Available on LMS
https://somaiya0.sharepoint.com/:o:/s/TYSSSAKandBGK/EvqLEyLGoxxMkpoSBSvSmSUB0uBVZ53mqxt86jMF4S2X7w?e=yxtk3W

MPMC

Module 1 and Module 2 (8086)