

Bridge course syllabus 2019-20

1) Maths-GEC-1300 A & GEC-1300 B

Unit 1 Fuzzy Sets

Introduction: Fuzzy numbers, Fuzzy Set, Classical logic, Applying truth values – continuous variable, Linguistic variables, Types of Fuzzy Logics, Advantages of Fuzzy Logic, Disadvantages of Fuzzy Logic

Unit 2 Abstract Algebra

Binary operation : definition, Semi group & Monoids : definition & examples, Group : definition & examples, simple properties of groups, Sub-group : definition & examples

Unit 3 Directed Graphs

Definition, types of directed graphs, vertices, Isomorphism of digraphs, Connectedness in digraphs, Euler digraph, Network & flows : Definition, examples, Maximal flow algorithm, Ford Fulkerson's Maximal flow network algorithm : examples

Unit – 4 Sequences of real numbers

Sequences of real numbers: definition, examples, Convergent, divergent, oscillatory sequences, definition & examples, Bounded sequence : definition & examples, Monotonic sequences, theorem on monotonic & bounded sequences (statement only), Show that $\left\{\left(1 + \frac{1}{n}\right)^n\right\}$ is convergent & its limit is 'e', 4.6
Convergence of sequence $\{x^n\}$, where $x \in R, x > 0$.

Unit – 5 Series of real numbers

Partial sums, Convergent, divergent series, definition & examples, Convergence of geometric series (with proof), Comparison test & its limit form (for the series of positive term), Convergence of p-series (with proof), D'Alembert's ratio test (statement only) & examples, Root test (statement only) & examples

2) Electronics- GEC-1301 A & GEC-1301 B

Unit-1 Electronics circuits and Digital electronics - I:

Introduction to Electronics components (active, passive component their properties and applications), Overview of Semiconductors - basic principle, operation and characteristics of PN diode, optoelectronic devices (LDR, photodiode, phototransistor, solar cell, opto couplers). (Applications of these component). Introduction to basic electronic communication system. Number systems and codes , logic gates , Boolean algebra, laws & theorems

,simplification of Boolean expression using K maps, implementation of Boolean expressions using logic gates , combinational and sequential circuits.

Unit 2 : Electronics Devices and Circuits – II :

Basic concept of Amplifiers, classification of amplifiers Introduction to oscillators (RC,LC) , op-amp and their applications (Linear and non linear), power supply and their parameters. Evaluation of microprocessors, Introduction of 8085 microprocessor, Microprocessor architecture and pin diagram (8086), comparison between 8085 and 8086

3) Computer Science- CC-CS-1303 A & CC-CS -1303 B

Unit-1: Operating System concepts

Types of OS –Single user, Multi-user. Process Management-Multiprogramming, Multitasking, Multiprocessing, Time sharing. Disk Operating System (DOS), Booting Processes, DOS internal and external commands, concept of directory and file. Windows Operating system: Features of Windows O.S., GUI Modules of Windows – Windows Explorer, Control panel, Printer Manager. Windows accessories – Paintbrush

Unit – 2: Office automation and Database basic concepts

Study of Word Processors and Spreadsheet: Definition of Word Processor, Detail study of features of MS- WORD Definition of Spreadsheet, Detail study of features of MS-Excel Definition of Field, Record, Database. Data Base Management System Concept, (Primary and Foreign key) MS-Access Data types, Creating tables, Handling database-using queries.

Unit-3: Programming Concepts

Pseudo code conventions, Examples, Time complexity, Iterative, Recursion (e.g. Fibonacci Sequence & Array Recursive Sum))

Unit –4 : Computer Network Basic Concepts

Basic elements of a communication system – sender, receiver and medium Data Transmission modes – Simplex, Half Duplex, Full Duplex Data Transmission Media – wire pairs, Co-axial cable, Microwave System, Communication Satellite, Optical fiber Definition of networking, Types of networking – LAN, MAN, WAN Network Topologies - BUS, Ring, Star, Mesh and Hybrid

Unit – 5: IT Management

Definition of Information Technology IT Assets and its managements- Data – Access rules, confidentiality of data, Backup procedure. IT Act in brief , Define different terms as mentioned in IT Act – Access , Address , Data , Digital signature , Electronic form , Electronic Gazette , License , Electronic record , License , Private key, Public key etc.

Unit- 6: Introduction to RDBMS

Data, Database, Database Management System, Concept of Data Models (Network, Hierarchical ,Relational), Concept of RDBMS, RDBMS Terminologies : relation, attribute, domain, tuple, entities, DBA & Responsibilities of DBA, Relational Model: Structure of Relational Databases, Relational Algebra

Unit 7: Structured Query Language (SQL)

Oracle Data types, Classification of SQL commands. 3. Create Table Command
4. Insert Command, Select Command using Where Clause, Delete Command and
Update Command 5. Data Constraints: Primary Key and Foreign key