COMPUTER APPLICATION (HONS./PG) [CODE -36]

1. **Computer Fundamentals:**

    Parts of a Computer, Block diagram of a Computer system and brief description of each functional unit, Input and Output devices, Memory hierarchies, Application and System software, Computer Languages.

2. **Computer Arithmetic:**

    Positional number systems and conversion of one base to another, Binary arithmetic, Negative number representation using 1's and 2's complement, VariousI codes: ASCII, EBCDIC, BCD, BCD arithmetic.

3. **Digital logic fundamentals:**

    Boolean algebra: Concepts and basic postulates, Forming Boolean expression, Minimization of function using algebra and K-maps, Implementation using basic gates.
    Combinational Circuits: Half Adder, Full Adder, Multiplexer and Demultiplexer.
    Sequential Circuits: Flip flops and Counters.

4. **Operating System:**

    Concept of Operating System, Functions of Operating System, Classification of Operating System, Process scheduling, Brief study about processor Management and memory management algorithm, Concept of Deadlock.

5. **Data Structure:**

    Date types and Structures-defination, Concept of linear and nonlinear data structures, Linear data structure: Array, Linkist, Stack, Queue.
    Nonlinear data structure: Graph, Tree
    Brief Study of algorithm, Complexity of an algorithm, Studies of searching and Sorting algorithms.

6. **Programming Language:**

    (a) C- Language:
         Basic structure, Character set, Keywords, identifiers, Constant and variables-type declaration. Arithmetic, Relational, Logical and Assignment operator, Conditional Operator, Formatted Input and Output, Branching and Looping. Array-one dimensional and two dimensional, Pointers, Structure and Union, File handling.
    (b) Object Oriented Programming:
         Concept, Difference with procedure oriented programming, data abstraction-object, class and methods, inheritance and polymorphism, OO approach- C++ as OO language.

7. **DBMS:**

   Advantage of using DBMS, Architecture, Relational Data Model, E-R data model, Writing of simple query, using relational algebra and SQL, Normalisation.

8. **Network:**

   Goals of Computer Network, Performance of a network, LAN, MAN, WAN and Internet, Various topologies and transmission media, OSI and TCP/IP Model, Concept of Protocols, Routing techniques, Switching techniques: Circuit and packet switching, Addressing schemes: Physical, logical and port addressing, Application of Network: e-mail, chatting, file transfer, Basic concept about WWW, DNS, URL.

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