THE MAHARAJA BHUPINDER SINGH PUNJAB SPORTS UNIVERSITY, PATIALA

SYLLABUS OF WRITTEN TEST FOR THE POST OF COMPUTER ASSISTANT FOR PROF. GURSEWAK SINGH GOVT. COLLEGE OF PHYSICAL EDUCATION, PATIALA VIDE ADVT. NO. 02 OF 2023

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1. **Data Base Management Systems (DBMS)**
   - ER Diagram, Data Models : Relational and Object Oriented databases.
   - Data Base Design : Conceptual Database Design.
   - Normalization.
   - Concept of Physical and Logical Databases
   - Data Abstraction and Data Independence, Data Aggregation and Relational Algebra.
   - SQL, Stored Procedures and Triggers and Views, Constraints Assertions.
   - RDBMS: Physical Data Organisation in Sequential, Indexed Random and Hashed Files.
   - Binary Trees
   - Transaction Processing, Concurrency Control and Recovery Management.
   - Deadlock.

2. **Data Communication and Computer Networks**
   - Computer Network Architecture, Circuit switching, Packet and Massage Switching
   - CSMA/CD and Ethernet.
   - High Speed LANs and Topologies.
   - Broadcast Routing and Spanning Trees.
   - OSI and TCP/IP
   - TCP/IP Stack. IP Networks and Internet.
   - DNS and Firewalls. Intrusion Detection and Prevention.
   - Network Management and Interoperability

3. **Programming Concepts**
   - Introduction: Internet, Internet Applications
   - Object Oriented Programming and Design: Data Abstraction, Encapsulation, constructors and destructors, Classes, and dynamic memory allocation, Inheritance, Polymorphism, exception handling and File processing. Coupling and Cohesion in Object Oriented Software
   - Programming Basics: Variables and Assignments, Input and Output, Data Types and Expressions Flow of Control, Local Variables, Overloading Parameter Passing, 'this' Pointer, Public and Private Members, Derived Classes, Arrays.
   - WEB DESIGNING

4. **Software Engineering –**
   - System modelling, system engineering process, life cycle models
   - software requirements, SRS, feasibility studies
   - system models
   - Real-time software design
   - Critical systems specifications
   - Software testing

5. **Discrete Mathematics, Probability and Statistics –**
   - Compound Statements,
   - Truth Tables
   - Operations on Sets,
   - Discrete probability: Union, Intersection and Compliment of events,
   - Boolean expressions

6. **MS-Office**
   - Ms -Word , Ms-Excel, Ms-Powerpoint

REGISTRAR