First Terminal Exam 2083

Bhandara Secondary School

Class: 12 **Time: 2 hrs** **F.M: 50**
Sub: Computer Science **P.M: 18**

Group A

Multiple Choice Questions **[9 x 1 = 9]**

1. Which of the following is the main purpose of database normalization?
   A. To increase data redundancy
   B. To reduce data redundancy and improve data integrity
   C. To increase the size of the database
   D. To remove relationships between tables
2. A company has offices in Kathmandu, Pokhara, and Biratnagar. Which type of network would be most suitable for connecting these offices across different cities?
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   A. LAN B. MAN C. WAN D. PAN
3. Which OSI layer is responsible for routing packets from one network to another?
   A. Physical Layer B. Data Link Layer
   C. Network Layer D. Transport Layer
4. A communication system allows data to travel in both directions, but only one direction at a time. Which mode of communication is used?
   A. Simplex B. Half-duplex
   C. Full-duplex D. Multiplex
5. Which OOP concept allows a child class to acquire the properties and methods of a parent class?
   A. Encapsulation B. Abstraction
   C. Inheritance D. Polymorphism
6. A programmer uses the same method name with different implementations for different objects. Which OOP concept does this demonstrate?
   A. Inheritance B. Encapsulation
   C. Polymorphism D. Abstraction
7. During which phase of the SDLC are the needs and requirements of the users identified and documented?
   A. Implementation B. Requirement Analysis
   C. Testing D. Maintenance
8. A customer is unsure about the exact requirements of a software system. The development team creates an initial working version to obtain customer feedback. Which model is most suitable?
   A. Waterfall Model B. Prototype Model
   C. V-Model D. Spiral Model
9. Which SQL command is used to retrieve records from a database based on a given condition?
   A. INSERT B. UPDATE C. SELECT D. DELETE

Group B

Short Answer Questions **[5 x 5 = 25]**

10. Differentiate between Centralized and Decentralized database with suitable examples.
11. Write SQL commands to perform the following operations:
    a) Create a database named School.
    b) Create a table named Student with fields StudentID, Name, Address, and Age.
    c) Insert a record of a student into the Student table.
    d) Display all records from the Student table.
    e) Display the record of students whose age is greater than 18.

    OR

    What is a Relational Database Model? Define it with a suitable example and describe its major advantages.
12. Explain different modes of communication in short with a suitable diagram
13. What is the Waterfall Model in Software Development? Draw a clean and neat diagram of the Waterfall Model and write its advantages and disadvantages.

    OR

    Who is a Software Engineer? Differentiate between the roles and responsibilities of a Software Engineer and a System Analyst.
14. What is Object-Oriented Programming (OOP)? Briefly describe the major characteristics of OOP..

Group C

Long Answer Questions. **[2 x 8 = 16]**

15. What is the OSI Reference Model? Describe its seven layers in brief with their major functions. Draw a neat and clean diagram of the OSI Reference Model.
16. What is database normalization? Explain the normalization process using the three normal forms step by step with the help of a suitable unnormalized table.

OR

What is the Software Development Life Cycle (SDLC)? Explain its different phases in brief with a suitable diagram.