Ch. 1: Typical Configuration of Computer System:

ONE mark questions

1. What is a motherboard?
2. What is a processor?
3. What is a system bus?
4. What is data bus?
5. What is a port?
6. What is an interface?
7. Expand PCI.
8. Expand USB.
9. What is meant by plug & play device?
10. What is a cache memory?
11. Expand SDRAM.
12. Expand SMPS.
13. Expand UPS.

THREE marks questions

1. Explain the different components of motherboard.
2. Explain the characteristics of motherboard.
3. Explain different types of I/O ports.
4. Explain cache memory.

Ch. 2: Boolean algebra

TWO marks questions

1. Prove algebraically that \((X+Y)(X+Z) = X + YZ\)
2. Prove algebraically that \(X + XY = X + Y\)
3. Use duality theorem to derive another Boolean relation from: \(A + AB = A+B\) \(\bar{\cdot}\)
4. What would be the compliment of the following:
   a) \(\bar{A}(BC + BC)\)
   b) \(AB + CD\)
   c) \(XY + \bar{YZ} + \bar{ZZ}\)
   d) \(X + XY + XZ\)
5. A truth table has output 1 for each of these inputs.
   \(ABCD = 0011, ABCD = 0101, ABCD = 1000, ABCD = 1000\), what are the fundamental products and write minterm expression.
6. Construct a Boolean function of three variables \(X, Y \& Z\) that has an output 1 when exactly two of \(X, Y \& Z\) are having values 0 & an output 0 in all cases.
7. Construct a truth table for three variables \(A, B \& C\) that will have an output 1 when \(XYZ = 100, XYZ = 101, XYZ = 110\) and \(XYZ = 111\). Write the Boolean expression for logic network in SOP form.
8. Convert the following expressions to canonical Product-of-Sum form:
   a. \((A+C)(C+D)\)
   b. \(A(B+C)(C + D)\)
   c. \((X+Y)(Y+Z)(X+Z)\)

9. Given the expression in 4 variables, draw the K-map for the functions:
   a. \(m_2 + m_3 + m_5 + m_7 + m_9 + m_{11} + m_{13}\)
   b. \(m_0 + m_2 + m_4 + m_6 + m_{10} + m_{12} + m_{13}\)

10. Draw the K-map for the function in three variables given below.
   a. \(m_0 + m_2 + m_4 + m_6 + m_7\)
   b. \(m_1 + m_2 + m_3 + m_5 + m_7\)

11. Write S-O-P expression corresponding to the function \(F\) in the following truth table and draw the logic gates diagram (use OR & AND gates)

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FIVE marks questions

1. Using maps, simplify the following expressions in four variables \(W, X, Y\) and \(Z\).
   a. \(m_1 + m_3 + m_5 + m_6 + m_7 + m_9 + m_{11} + m_{13}\)
   b. \(m_0 + m_2 + m_4 + m_6 + m_{10} + m_{11} + m_{12} + m_{13}\)

2. State and prove De Morgan’s theorems algebraically.

3. Given the Boolean function \(F(x, y, z)=\sum(0, 2, 4, 5, 6)\). Reduce it using Karnaugh map method.

4. Given Boolean function \(F(A,B,C,D) = \sum(5,6,7,8,9,10,14)\). Use Karnaugh’s map to reduce the function \(F\) using SOP form. Write a logic gate diagram for the reduced SOP expression.

Ch. 3: Logic Gates

ONE mark questions:

1. What is logic gate?
2. Which basic gate is known as Inverter?
3. Write the standard symbol for AND gate.
4. Write standard symbol for OR gate.
5. Write the standard symbol for NOT gate.
6. What is meant by universal gates?

THREE marks questions

1. What is meant by proof by perfect induction? Give an example.
2. Write the truth table and standard symbol of AND gate.
3. Write the truth table and standard symbol of OR gate.
4. Explain the working of NAND gate. (Write the output condition).
5. Write the truth table and standard symbol of NOR gate.
6. Draw the logic gate diagram to implement AND & OR gates using the NAND gates only. (any two gates)
7. Draw the logic gate diagram to implement AND & OR gates using the NOR gates only. (any two gates)
8. State De Morgan’s theorems
10. Simplify the following logical expression using De Morgan’s theorems.
    a. \( ABC + \overline{AB} \)
    b. \( XZ + XY + XZ \)
11. Draw the logic circuit diagram for the following expressions.
    a. \( Y = AB + BC + CA \)
    b. \( Y = XY + ZX + YZ \)
12. Simplify the following Boolean Expressions.
    a. \( ABC + \overline{ABC} + \overline{ABC} + \overline{ABC} \)
    b. \( AB + \overline{AB} + \overline{AC} + \overline{AC} \)

Ch. 4: Data Structures

ONE mark questions

1. What are data structures?
2. What are primitive data structures?
3. What are non-primitive data structures?
4. Name the data structures which is called LIFO list.
5. What is the other name of queue?
6. Define an array.
7. What is a stack?
8. What is a queue?
9. What is a linked list?
10. Mention any 1 application of stack.
11. What is meant by sorting in array?
12. What is a binary tree?
13. What is FIFO list?
14. What is LIFO list?

Three marks questions

1. Mention the various operations performed on data structures.
2. Explain the memory representation of a stack using 1-dimensional array.
3. Explain the memory representation of queue using 1-dimensional array.
4. Define the following with respect to binary tree:
5. Write an algorithm for traversal in a linear array.

FIVE marks questions

1. Write an algorithm to insert an element in an array.
2. Write an algorithm to delete an element in an array.
3. Write an algorithm to search an element in an array using binary search.
4. Write an algorithm to sort an array using insertion sort.
5. Write an algorithm for push & pop operation in stack using array.
6. Write an algorithm to insert a data element at the rear end of the queue.
7. Write an algorithm to delete a data element from the front end of the queue.
8. Write an algorithm to insert a data element at the beginning of a linked list.
9. Write an algorithm to delete a data element at the end of a linked list.
10. Apply binary search for the following sequence of numbers.
    10, 20, 30, 35, 40, 45, 50, 55, 60 search for item=35

Computing In C++

Ch. 6: Basic concepts of OOPS

Two marks questions

1. What is the difference between program module and an object?
2. Mention different types of inheritance.
3. Mention any 2 advantages of object oriented programming over earlier programming methods.

FIVE marks questions

1. Write the differences between procedural programming and object oriented programming.
2. Explain advantages of OOP’s
3. Write disadvantages of object oriented programming.

Ch. 7: Classes and Objects

ONE mark questions

1. What is a class?
2. What is an object?
3. What are data members?
4. What is a member function?
5. Is it possible to access data outside a class?
6. Which type of data members are accessible outside a class? 
7. Which access specifier is implicitly used in a class? 
8. Define the term public access. 
9. What is the significance of scope resolution operator (::)? 
10. How are objects of a class declared? 

FIVE marks questions 

1. Explain class definition and class declaration with syntax and example. 
2. Describe access specifiers in a class. 
3. Explain member functions 
   a. Inside class definition. 
   b. Outside a class definition. 
4. Explain how objects of a class can be defined? 
5. Describe how objects can be used as function arguments. 

Ch. 8: Function Overloading 

FIVE marks questions 

1. Discuss overloaded functions with syntax and example. 
2. Explain inline functions with syntax and example. 
3. Explain friend functions and their characteristics. 

Ch. 9: Constructors and Destructors 

TWO marks questions 

1. What is a constructor? Give an example. 
2. Write the syntax and example for default constructor. 
3. Mention the features of parameterized constructors. 
4. Which are the different methods through which constructors are invoked? 
5. When is copy constructor used in a program? 
6. Write a syntax and example for copy constructor. 

FIVE marks questions 

1. Write the rules for writing a constructor function. 
2. Explain default constructor with syntax and example. 
3. Explain parameterized constructor with syntax and example. 
4. Explain destructor with syntax and example. 

Ch. 10: Inheritance 

FIVE marks questions 

1. What is difference between public and private and protected access specifier? 
2. What are the advantages of inheritance?
3. What are the types of inheritance? Explain any 2.
4. What is virtual base class? Give example.
5. Explain single inheritance with a suitable C++ program.
6. What is visibility mode? What is its role?

Ch. 11: Pointers

ONE mark questions
1. What do you mean by pointer?
2. What is address operator?
3. What is pointer operator?
4. How to declare pointer?
5. What is static memory?
6. What is dynamic memory?
7. What is free store?
8. What is new operator in C++?
9. What is delete operator in C++?

THREE marks questions
1. What are the advantages of pointers?
2. How dynamic memory allocation is different from static memory allocation.
3. What is new operator in C++? Give example.
4. What is delete operator in C++? Give example.
5. What is the relationship between structures and pointers? Give examples.

Ch. 12: Data File Handling

TWO marks questions
1. What is stream? Name the streams generally used for file I/o.
2. What are input and output streams?
3. Differentiate between ifstream class and ofstream class.
4. Differentiate between read () and write ()
5. Differentiate between get () and getline ().

THREE marks questions
1. Mention the methods of opening file within C++ program. Discuss.
2. Differentiate between ifstream class and ofstream class.
3. Differentiate between read () and write ()
4. Differentiate between get () and getline ()
5. Mention the types of file. Explain any one.

Chapter - 13
DATABASE CONCEPTS

One marks questions

1. What is data?
2. What is information?
3. What is database?
4. What is field?
5. What is a record?
6. What is an entity?
7. What is an attribute?
8. What is domain?
9. What is a relation?
10. What is a table?
11. What is normalization?
12. What is a key?
13. What is data mining?

Two marks question

1. Name the data types supported by DBMS.
2. What is the difference b/w serial and direct access file organization?
3. Give the advantages and disadvantages of index sequential access method.
4. What is Cartesian product?
5. What is join operation?
6. What is data warehouse?

Three marks questions

1. Mention the applications of database.
2. Give the difference b/w manual and electronic file systems.
3. Explain Boyce and codd form (BCNF).
4. Give the different notation for E-R diagram.
5. Explain physical data independence.
6. Explain ISAM with example.
7. Explain hierarchical data model.
8. Explain relational data model.
9. List the components of data warehouse.

Five marks questions

1. Explain data processing cycle?
2. Explain normalization with classifications and examples.
3. Explain cardinality with example.
4. Explain DBMS architecture.
Chapter – 14

SQL COMMANDS

Two marks questions

1. Classify various SQL operations.
2. Which are the logic operators in SQL?
3. What is the use of NULL value?
4. What is create view command?

Five marks questions

1. Explain SQL constraints with example.
2. Write the difference b/w order by and group by with example.

Chapter – 15

NETWORKING CONCEPTS

One marks questions

1. What is networking?
2. What is server?
3. What is client?
4. What is topology?
5. Expand 2G.
6. What is a virus?
7. What is chatting?
8. What is cyber law?
9. What are cookies?
10. What are hackers?

Two marks questions

1. List the goals for networking.
2. What do you mean by transmission modes?
3. Which are the switching technologies used?
4. What is SIM card?
5. What is network security?

Five marks questions

1. Explain the working of OSI and TCP/IP?
2. Explain various networking device used?
3. What is topology explain in detail?
4. Explain network security in detail.
Chapter – 16

INTERNET AND OPEN SOURCE

One marks questions

1. What are free software?
2. What is proprietary software?
3. What freeware?
4. What are browsers?
5. What are URL?
6. What are telnet?
7. What is domain?
8. Define e-commerce?
9. Expand IPR?

Three marks questions

1. Write the advantages of WWW?
2. Write a note on open sources?
3. How e-commerce works?
4. Explain types of e-commerce?

Chapter – 17

WEB DESIGNING

One marks questions

1. What is HTML?
2. What will be the extension of hypertext markup language file?
3. What do you mean by domain?
4. What do you mean by hosting?
5. What is XML?
6. What is web scripting?
7. What is DHTML?

Three marks questions

1. Explain the program to include tables in web page.
2. What are steps used in creating web hosting?
3. How do you register a domain?
4. What is web scripting?
5. Give the features of XML?
6. Give the features of DHTML?
7. Write the difference of client-side script?
8. Write server-side scripting?
9. Create a web page for creating your college time table?
10. Create a webpage using forms?
11. What are the advantages of web designing?
12. What are the advantages and disadvantages of WWW?
13. Write a note on URL?