Madurai Kamaraj University

Directorate of Distance Education

Department of Computer Science

ASSIGNMENT

II SEMESTER

BCA

Object Oriented Programming with C++

Marks: 5X5=25

Answer all the question:

1) a. Explain the basic concepts of OOPS.

(Or)

b. Discuss in detail about expression and their types.

2) a. What is a friend function? What are the merits and demerits of friend function?

(Or)

b. Describe the concept of copy constructor with example.

3) a. List out the rules of operator overloading. explain it

(Or)

b. Explain any types of Inheritance in detail.

4) a. What is meant by virtual function? Why do we need virtual function?

(Or)

b. Explain about Unformatted I/O operations.

5) a. What is a file mode? Explain various file modes.

(Or)

b. Explain the purpose of command line arguments.

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Digital Principles and Computer Organization

Answer all the question:

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1) a. Find 2's complement for the numbers given below.
   a)   1000 0001
   b)   0011 0110

(Or)

b. Convert the following.
   a)   Hexadecimal to binary – 9AF
   b)   Binary to hexadecimal - 1000 1100

2) a. What is a multiplexer? Explain about 16 to 1 multiplexer with a neat diagram.

(Or)

b. Explain about parity generators and checkers.

3) a. Explain half subtracted with diagram and the truth table.

(Or)

b. Write short note on Binary subtraction

4) a. Write short notes on common bus systems

(Or)

b. Write short notes on control memory organization.

5) a. Explain in detail about stack organization

(Or)

b. Brief Auxiliary memory

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MCA

Optimization techniques

Answer all the question:

Marks: 5X5=25

1) a. Obtain the dual of the following primal problem.
   Maximum $x=2x_1 +3X_2 +X_3$
   Subject to constraints $4X_1 + 3X_2 + X_3= 6$, $4X_1 +3 X_2 +5X_3 \leq 4$,
   $X_1, X2, X_3 \geq o$.

   (Or)

   b. Use simplex method to solve the LPP
   Maximum $x=4x_1 +10_{X2}$
   Subject to constraints $2X_1 + X_2 \leq 50, 2X_1 +5 X_2 \leq 100, 2X_1 + 3X_2 \leq 90$,
   $X_1 \geq 0$ and $X2 \geq o$.

2) a. Write the transportation algorithm

   (Or)

   b. Solve the travelling salesman problem

-	4	7	3	4
4	-	6	3	4
7	6	-	7	4
3	3	7	-	7
4	4	5	7	-

3) a. Solve the game whose pay off matrix is

   Player B

   Player A $\quad [\begin{matrix} 8 & -3 \\ -3 & 1 \end{matrix}]$

   (Or)

   b. A project has the following time schedule

Activity	1-2	1-3	2-4	2-5	3-4	4-5
Time duration	8	4	2	10	5	3

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4) a. Explain deterministic model in inventory problem

(Or)

b. Explain ECQ model with uniform demand

5) a. Explain birth death queuing system

(Or)

b. Explain i) Arrival characteristic   ii) waiting line characteristics

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Machine Learning

Answer all the question:

Marks: 5X5=25

1) a. Describe Bayesian Linear Regression.

(Or)

b. List out the Applications of Machine Learning.

2) a. Explain Linear Models for Classification.

(Or)

b. Elucidate Neural Networks.

3) a. Explicate K-Means Clustering.

(Or)

b. Clarify Principal Component Analysis.

4) a. Explain Bayesian Model.

(Or)

b. Simplify Markov Model.

5) a. Elucidate Semi - Supervised Learning.

(Or)

b. List out Basic Sampling Methods.

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Object Oriented Programming and Design

Marks: 5X5=25

Answer all the question:

1) a. Explain the basic concepts of OOPS?

   (Or)

   b. Write a C++ program using Inline function?

2) a. Write a short note on function overloading in C++ with examples program.

   (Or)

   b. How to overload a constructor in C++?

3) a. Explain Inheritance? And its types.

   (Or)

   b. Write a C++ program to implement multi level inheritance.

4) a. List out the difference between class template & function template?

   (Or)

   b. Illustrate the concept of exception handling in C++ with a suitable program.

5) a. How does the error handling file operation in C++

   (Or)

   b. How to access a file, with? C++ program, explain it with a suitable program?