

Roll No.

Total No. of Questions : 09]

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MCA (Sem. - 4th)

OBJECT ORIENTED ANALYSIS & DESIGN

SUBJECT CODE : MCA - 405C (Elective - I)

Paper ID : [B0121]

[Note : Please fill subject code and paper ID on OMR]

Time : 03 Hours

Maximum Marks : 60

Instruction to Candidates:

- 1) Attempt any one question from each Sections - A, B, C & D.
- 2) Section - E is **Compulsory**.
- 3) Use of Non-programmable **Scientific Calculator** is allowed.

Section - A

(1 × 10 = 10)

- Q1)** What do you understand by inheritance? Give its various types and access mechanisms. What are the advantages of scope resolution & referencing?
- Q2)** For the schema employee (emp-id, emp-name, street, city) give the class representation along with the attribute types. Give the characteristics of object oriented system. What is an object? Give an example.

Section - B

(1 × 10 = 10)

- Q3)** Explain what are overloaded functions & how does a compiler proceed to execute an overloaded function? What is the meaning of polymorphism?
- Q4)** Explain with examples the difference between overriding and overloading? What are the various types of operators available in C++? Explain an example by overloading << and >> operators to perform customized input and output.

Section - C

(1 × 10 = 10)

- Q5)** What is meant by Class hierarchy? What are various types of Inheritance? Also explain the difference between subtype and subclass?
- Q6)** What are various types of files? What are the various modes in which a file can be opened? Explain by giving examples.

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Section - D

(1 × 10 = 10)

- Q7)** Consider an ATM system. Identify at least three different actors that interact with this system? Can this system be represented as an actor? Justify your answer.
- Q8)**
- a) Discuss what the objects in each of the following lists have in common: Bicycle, Sail-boat, Car, Truck, Airplane, Glider, Motorcycle, Horse.
 - b) Prepare a list of objects that you would expect each of the following systems to handle:
 - i) A Telephone Answering Machine.
 - ii) A Catalog Store Order Entry System.

Section - E

(10 × 2 = 20)

Q9)

- (a) What are container classes?
- (b) What is the role of friend functions?
- (c) What is the role of an object in C++?
- (d) What is meant by early binding?
- (e) What is a structure and how is it different from a union?
- (f) What is the role of classes in C++?
- (g) What is a call by reference method in use of functions?
- (h) What is a virtual class?
- (i) What function can be used to open a file in C++?
- (j) What are pure virtual functions?

