

Total No. of printed pages = 2

**MCA 182304**

Roll No. of candidate

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

BINA CHOWDHURY CENTRAL LIBRARY  
(GINT & LIT)  
Azara, Haikhowpara,  
Guwahati - 781017

1573 / 2021

**M.C.A. 3<sup>rd</sup> Semester (End Term) Examination**

**OBJECT ORIENTED PROGRAMMING AND DESIGN**

**(New Regulation W.e.f. 2017-18 and New Syllabus W.e.f. 2018-19)**

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

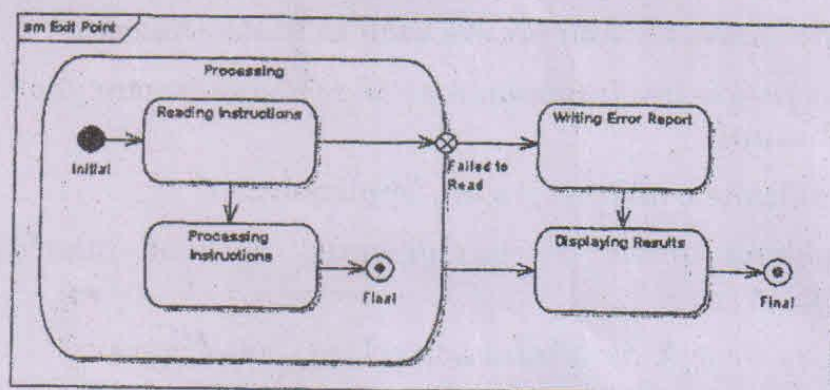
Answer question No. 1 and any *four* from the rest.

1. Answer the following : (10 × 1 = 10)
- (i) List different relationships shared among objects of an application.
  - (ii) When and why constructor is used in a class?
  - (iii) State the purpose of generalization.
  - (iv) How framework and contract help in OO application development?
  - (v) How encapsulation and data hiding is done in OOP?
  - (vi) Why are activities and events used in State Diagram?
  - (vii) If a programming language provides a constructor for a class, what will be its signature?
  - (viii) How multiple constructors are implemented?
  - (ix) Can polymorphism be implemented without inheritance? Justify your answer.
  - (x) How Use Case is determined in a Use Case diagram.
2. (a) Give the sequence and activity diagram for login operation. (5)
- (b) Why domain analysis and application analysis are done in application development? Write their significance? (2 + 2 = 4)
- (c) Why non-portable codes should be kept separately? (3)
- (d) Why serializing and marshaling of objects are needed? (3)

[Turn over

3. (a) Illustrate the relationship between person, employee and organization using class diagram. Elaborate it with an object diagram for this class diagram. (2 + 3 = 5)
- (b) How transient objects are represented in sequence model? Give example. (5)
- (c) Why qualified associations are used? Explain. (5)
4. (a) Why association end names are important? Explain with example. (2 + 3 = 5)
- (b) Give one-shot state diagrams for chess game with and without entry and exit points. (6)
- (c) When include and extend relationships are used in Interactive modeling? (4)
5. (a) Discuss the three types of attributes used in OOP. (6)
- (b) Discuss the relations among class model, state model and interaction model? (3)
- (c) How to show passive objects in sequence diagrams? Give example. (4)
- (d) Why are events used? Name few commonly used events in state modeling. (2)
6. (a) Write the differences between Waterfall and Iterative development. (6)
- (b) How signals are shown in activity diagram? State with an example. (4)
- (c) Why multiple inheritances are important? Write the delegation methods to avoid it. (2 + 3 = 5)
7. (a) Explain the system given below: (5)

BINA CHOWDHURY CENTRAL LIBRARY  
(GIT & CI - 3)  
Azara, Hatkhowapara,  
Guwahati - 781017



- (b) Why state diagram is important? (2)
- (c) Write different ways to handle errors in applications. (5)
- (d) When association class is used? How it can be shown in class diagram? (2 + 1 = 3)