

Total No. of printed pages = 4

MCA 182304

Roll No. of candidate

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2021

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M.C.A. 3rd Semester End-Term Examination

OBJECT ORIENTED PROGRAMMING AND DESIGN

(New Regulation (w.e.f. 2017-18) &
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 questions :

(10 × 1 = 10)

- (i) A class is divided into which of these compartments?
 - (a) Name Compartment
 - (b) Attribute Compartment
 - (c) Operation Compartment
 - (d) All of the mentioned
- (ii) When does method-overloading is determined?
 - (a) At run time
 - (b) At compile time
 - (c) At coding time
 - (d) At execution time
- (iii) Which concept of Java is achieved by combining methods and attribute into a class?
 - (a) Encapsulation
 - (b) Inheritance
 - (c) Polymorphism
 - (d) Abstraction

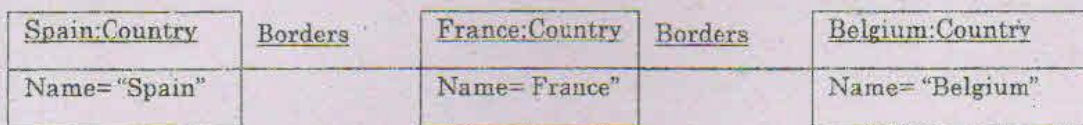
[Turn over

- (iv) A class member declared protected becomes a member of subclass of which type?
- (a) public member
 - (b) private member
 - (c) protected member
 - (d) static member
- (v) What is the process of defining more than one method in a class differentiated by parameters?
- (a) Function overriding
 - (b) Function overloading
 - (c) Function doubling
 - (d) None of the mentioned
- (vi) Which of the below key word must be used to inherit a class?
- (a) Super
 - (b) This
 - (c) Extent
 - (d) Extends
- (vii) _____ diagrams are used to illustrate data structures, and the static snapshots instances of the things found in the class diagrams.
- (a) use case
 - (b) object
 - (c) activity
 - (d) sequence
- (viii) A UML diagram that facilitates requirements gathering and interacts between system and external users, is called as
- (a) Flowchart diagram
 - (b) Sequence diagram
 - (c) Use case diagram
 - (d) Data flow diagram
- (ix) _____ diagram illustrates use case realizations.
- (a) Sequence
 - (b) Class
 - (c) use case
 - (d) Activity

- (x) What happens if constructor of class A is made private?
- Any class can instantiate objects of class A
 - Objects of class A can be instantiated only within the class where it is declared
 - Inherited class can instantiate objects of class A
 - classes within the same package as class A can instantiate objects of class A

2. Answer the following questions

- What are the different access-specifiers in Java? Explain the use of access-specifiers in Java? Explain. (5)
- Prepare a class diagram from the object diagram given below: (5)



- What are the different types of variable used in Java? Explain their use using a suitable Java Program. (5)

3. Answer the following questions

- What are the characteristics of an Object-Oriented Programming? Explain. (5)
- What is a constructor? How a constructor is different from a method? (5)
- Explain the concept of Single Level Inheritance using a suitable Java Program. (5)

4. Answer the following questions

- Prepare a State-diagram for phone line with activities. (6)
- What is an Association class? How it is different from an ordinary class? (5)
- What is an Association? How it is different from a Link? (4)

5. Answer the following questions

- Prepare an use-case diagram for online book store. (5)
- Construct a sequence diagram for the transaction processes of an ATM machine. (5)
- What is an Aggregation? How it is different from Association? Explain with example (5)

6. Answer the following questions

- (a) What is the difference between super and super() ? (3)
- (b) What is a package? What is the difference between user-defined package and java package? How can we use a user-defined package in a java program? Explain. (7)
- (c) What are the drawbacks of procedural programming languages over object oriented programming language. (5)

7. Answer the following questions

- (a) Explain the following models: (3 × 3 = 9)
 - (i) Class Model
 - (ii) State Model
 - (iii) Interaction Model
- (b) What does multiplicity specifies in an UML diagram? How can we represent multiplicity? (4)
- (c) What is the difference between bag and sequence in UML diagram? (2)

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