Course Name: Object Oriented Programming & Methodology

Course Outcomes (CO):

1. Name and apply some common object-oriented design patterns and give examples of their use.
2. Identify classes, objects, members of a class and relationships among them needed for a specific problem
3. Discuss the Java language features and analyze the differences between Structural and Object Oriented programming approach
4. Specify simple abstract data types and design implementations, using abstraction functions to document them.
5. Recognize features of object-oriented design such as encapsulation, polymorphism, inheritance, and composition of systems based on object identity.
6. Design applications with an event-driven graphical user interface.

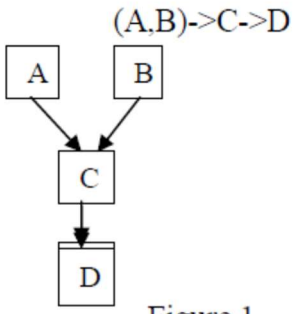
Model Question Paper
Total Duration (H: M): 3:00
Course: Object Oriented Programming & Methodology Maximum Marks: 100

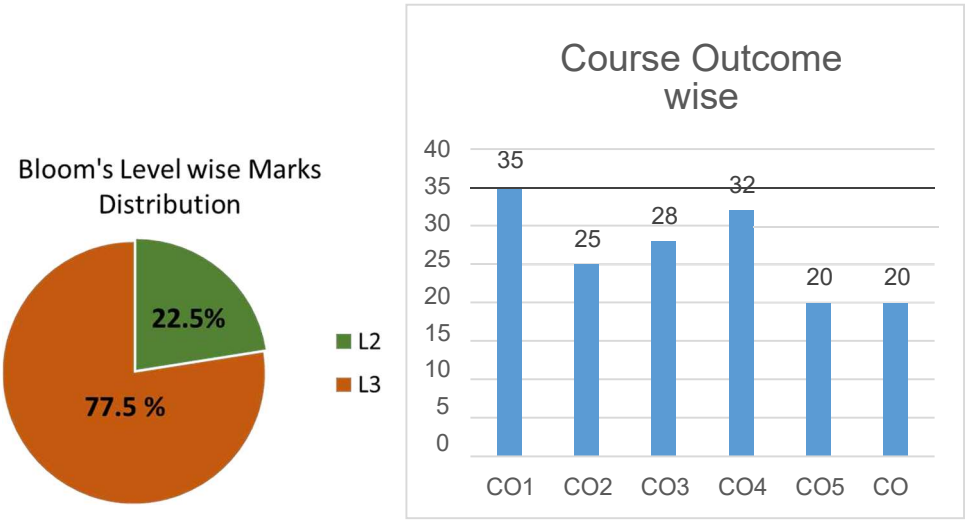
Note: Answer Any two questions from UNIT I, UNIT II and one question from UNIT III

Q.No	Questions	Marks	CO	BL	PI
	UNIT I				
1a	Explain all the components of DFD. Also, prepare a DFD for computing the volume and surface area of a cylinder. Inputs are the height and radius of the cylinder. Outputs are volume and surface area. Discuss several ways of implementing the DFD.	10	CO2	L3	1.1.1
1b	What is the purpose of state diagrams? How concurrency is related with state diagrams? Give an example state diagram on support of your answer.	5	CO 1	L3	1.1.1
1c	What are constraints? Explain in context of object modeling.	5	CO1	L2	1.1.1

Q.No	Questions	Marks	CO	BL	PI
2a	Differentiate between Aggregation and Generalization by taking a suitable example.	5	CO 2	L2	1.1.1
2b	Define the concept of candidate keys by taking a suitable example.	5	CO 1	L3	1.1.1
2c	In a Hospital Management System, many patients are taken care by doctors and nurses. While nurses are associated with doctors one for one basis. Discuss link, association and cardinality for the above scenario.	10	CO1	L3	1.1.1
3a	Prepare a DFD for hostel mess. Also explain leveling of DFD?	5	CO 2	L2	1.1.1
3b	Give definition of DFD. Draw a two level DFD for a mathematical puzzle recognizing a natural number as odd prime or even prime.	10	CO 1	L3	1.1.1
3c	Differentiate between OMT, SA/SD and JSD methodologies with examples.	5	CO 2	L3	1.1.1
	UNIT II				
4a	Difference between static methods, static variables, and static classes in Java.	6	CO4	L3	1.1.1

Q.No	Questions	Marks	CO	BL	PI
b	Suppose, you want to find the tallest student of your class. For reusability, the list of students must be passed to a method which returns the height only. Write the java code appropriately.	8	CO4	L3	1.1.1
c	What is an Array Class in Java and How to Implement it?	6	CO3	L2	1.1.1
5a	i) Write a java program to differentiate method overloading and method overriding. ii) Differentiate between constructor and method of class.	10	CO3	L3	1.1.1
b	How is the creation of a String using new() different from that of a literal?	6	CO4	L2	1.1.1
c	Discuss public, private, protected and default access modifier with example.	4	CO4	L3	1.1.1
6a	Explain the following java keywords and their use with example: a. super, transient, finally, final b. this, static, throw, throws	8	CO4	L3	1.1.1

Q.No	Questions	Marks	CO	BL	PI
b	What do you mean by multithreading? List its advantages and disadvantages. How can it be implemented in java? Explain.	8	CO3	L3	1.1.1
c	Explain compilation & execution process of java (block diagram).	4	CO3	L2	1.1.1
	UNIT III				
7a	Explain single level and multiple inheritances in java. Write a program to demonstrate combination of both types of inheritance as shown in figure 1. i.e. hybrid inheritance  Figure 1	6	CO5	L3	1.1.2
b	What is an Exception? List out the keywords for exception handing and write steps to develop user defined exception.	6	CO5	L2	1.1.2
c	List the classes to handle I/O in java? Write a java code to copy one text file to another text file.	8	CO5	L3	1.1.2
8a	Define Applet? Discuss its life cycle. Write a java code to demonstrate a small applet.	8	CO6	L3	1.1.1
b	What is method overloading? Can you define two methods that have same name but different parameter types? Can you define two methods in class that have identical method names and parameter profile with different return values types or different modifier?	6	CO6	L2	1.1.1
c	"Interface variables are static and final by default in Java"- Support this statement with proper explanation. Compare and contrast an Interface and abstract class?	6	CO6	L2	1.1.1



BL – Bloom's Taxonomy Levels (1- Remembering, 2- Understanding, 3 – Applying, 4 – Analysing, 5 – Evaluating, 6 - Creating)
CO – Course Outcomes
PO – Program Outcomes; PI Code – Performance Indicator Code