

K. J. Somaiya College of Engineering, Mumbai-77

(Autonomous College Affiliated to University of Mumbai)

End Semester Exam

MAY-JUNE 2021

(AUGUST 2021)

Max. Marks: 50**Duration: 1 Hr. 45 Min.****Class: SY B.Tech****Semester: III****Name of the Course: Object Oriented Programming Methodology****Branch: Computer Engineering****Course Code: 2UCC304****Instructions:**

- i. All questions are compulsory
- ii. Draw neat diagrams
- iii. Assume suitable data if necessary

| Question No. | | Max Marks |
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| Q1 (A) | Objective / MCQ type | 10 Marks |
| 1 | Which is true? A. The notifyAll() method must be called from a synchronized context B. To call wait(), an object must own the lock on the thread C. The notify() method is defined in class java.lang.Thread D. The notify() method causes a thread to immediately release its lock | 01M |
| 2 | What is the output of following code? <pre>class Shape { private final void flipper() { System.out.println("Shape"); } } public class Cylinder extends Shape { public final void flipper() { System.out.println("Cylinder"); } public static void main(String [] args) { new Cylinder().flipper(); } }</pre> A. Cylinder B. Shape C. Shape Cylinder D. Cylinder Shape | 02M |

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| 3 | <p>Given:</p> <ol style="list-style-type: none"> 1. ClassW has a ClassZ 2. Methods in ClassW use public methods in ClassX 3. Methods in ClassY use public methods in ClassW 4. Methods in ClassW use public variables in ClassX <p>Which is most likely true?</p> <ol style="list-style-type: none"> A. ClassZ has low cohesion B. ClassW has weak encapsulation C. ClassX has weak encapsulation D. ClassY is tightly coupled to classW | 01M |
| 4 | <p>What is output of following code?</p> <pre> 1. public class Demo { 2. public static void main(String[] args) { 3. int mask = 0; 4. int count = 0; 5. if(((5<7) (++count < 10)) mask++ < 10) mask = mask + 1; 6. if((6 > 8) ^ false) mask = mask + 10; 7. if(!(mask > 1) && ++count > 1) mask = mask + 100; 8. System.out.println(mask + " " + count) 9. } 10. }</pre> <ol style="list-style-type: none"> A. mask is 0 B. mask is 1 C. mask is 2 D. mask is 10 | 02M |
| 6 | <p>Given: try { int x = Integer.parseInt("two"); }</p> <p>Which could be used to create an appropriate catch block?</p> <ol style="list-style-type: none"> A. ClassCastException B. IllegalStateException C. NumberFormatException D. ArrayIndexOutOfBoundsException | 01M |
| 7 | <p>What is output of following code?</p> <pre> 1. public class Sun { 2. public static void main(String args[]) { 3. foreach: 4. for(int j=0; j<5; j++){ 5. for(int k=0; k<3;k++){ 6. System.out.println(""+j); 7. if(j==3 && k==1) break foreach; 8. if(j==0 j==2) break; 9. } 10. } 11. } 12. }</pre> <ol style="list-style-type: none"> A. 0 1 2 3 B. 1 1 1 3 3 C. 0 1 1 1 2 3 3 D. 1 1 1 3 3 4 4 4 4 | 02M |

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| 8 | <p>Which of following is true about given function func?</p> <pre>void func(int x, int y) { x--; y--; return (x+y); }</pre> <p>A. The sum of x and y B. The sum of decremented value of x and y C. Returns a pointer to decremented value of x and y D. Compilation Error: return value type does not match function type</p> | 01M |
| Q 1(B) | Attempt any FIVE questions out of the following (any 5 out of 7) | 10 Marks |
| 1 | List types of inheritance in Java and explain any one in detail | 02 M |
| 2 | Explain concept of command line arguments with example | 02 M |
| 3 | Draw thread life cycle used in Java Multithreading process | 02 M |
| 4 | Difference between abstract class and abstract method | 02 M |
| 5 | Illustrate Jagged Array with example | 02 M |
| 6 | Why are access specifiers required in Java? | 02 M |
| 7 | What is significance of Final Keyword | 02 M |
| Q 2(A) | <p>Write a program that accepts an array of integer data type. If a user enters a value other than integer value, then it will throw user defined exception called InputMismatchException. On the occurrence of such an exception, your program should print “You entered bad data.” If there is no such exception it will print the total sum of the array.</p> <p style="text-align: center;">OR</p> <p>Five candidates, designated 0 to 4, are competing in an election for Manager post in “XYZ” firm. Write a program that counts the votes for each candidate. The input to your program is an array of numbers in the range 0–4 such that a value of i signifies a vote for candidate i. Use an array to keep a tally of the votes. In case, a number read is outside range 0 to 4, vote should be considered as invalid votes.</p> <p>Typical input might be: 1 1 3 3 3 4 1 2 0 2 3 1 4 5 4 4 0 3 4 3 1 2 3 4 1 2 3 1 1 1 2 3</p> <p>Output from your program should be 5 pairs (one pair per line) of the form: (candidate number, number of votes) Ex: (0,2)</p> | 05 M |
| Q 2(B) | Explain any two approaches used for performing thread synchronization in Java with example | 05 M |
| Q 3 | <p>Draw class diagram for the following description of an Internet auction system. Identify classes and their responsibilities. Also include relationship and association between classes</p> <p>1. <u>Types of users:</u></p> <ol style="list-style-type: none"> 1. Anyone <ol style="list-style-type: none"> 1. Anyone may use the search features of the system. 2. Anyone may look at an auction's information. 2. Members <ol style="list-style-type: none"> 1. Only members may bid or place items for sale. 2. All members must register with the system. 3. Members must supply their name and a valid e-mail | 10 M |

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| | <p>address.</p> <ol style="list-style-type: none"> 4. After registering, the system will create an account for the member. <ol style="list-style-type: none"> 1. A password will be mailed to the e-mail address specified. 5. Members must log in to bid or place an item for sale. 6. Members who forget their password can have it re-mailed to them. <p>2. <u>Auctions</u></p> <ol style="list-style-type: none"> 1. An auction involves an item, a seller, and zero or more bidders. 2. Items and sellers <ol style="list-style-type: none"> 1. Sellers put up items for auction 2. The item must include a name, a closing time, and a minimum bid. 3. The item may include a description and a picture. 4. Sellers may have any number of auctions active at one time. 3. Bids and bidders <ol style="list-style-type: none"> 1. Any member may bid in any auction. 2. Bids may be placed at any time before the closing time. 3. A bid must be at least the minimum bid, and higher than any bid so far. 4. Ending an auction. <ol style="list-style-type: none"> 1. No matter how an auction ends, it is immediately removed from the list of active auctions. 2. If no bids are placed before the closing time, the auction is closed unsuccessfully and the seller notified by e-mail. 3. If at least one legal bid has been placed before the closing time, the auction is closed successfully. The winning bidder and the seller are both mailed each other's contact information and the winning bid. 4. The seller may cancel the auction up to 24 hours before the closing time. All bidders on this auction will be mailed a notice of the cancellation. <p>3. <u>Searching</u></p> <ol style="list-style-type: none"> 1. Any user may search through active auctions by keyword. 2. All active auctions with name or description containing the keyword are presented to the user. <ol style="list-style-type: none"> 1. The auctions are sorted by closing time in chronological order. 2. The user may click a link to go directly to the auction. | |
| Q 4 | <p>What are vectors in Java? Explain any four vector methods with example.</p> <p style="text-align: center;">OR</p> <p>Difference between:</p> <ol style="list-style-type: none"> i. Procedural Programming Approach and Structured Programming Approach ii. Modular Programming Approach and OOP Approach | 10 M |