Question Paper

Exam Date & Time: 10-Jun-2019 (09:30 AM - 12:30 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

INTERNATIONAL CENTER FOR APPLIED SCIENCES

II SEMESTER B.Sc. (Applied Sciences) in ENGG. - END SEMESTER THEORY EXAMINATION - APRIL/MAY 2019

Java Programming [ICS 121]

Marks: 100 **Duration: 180 mins.**

Answer 5 out of 8 questions.

Missing data, if any, may be suitably assumed

1)		What is Bytecode? How is it useful to make Java programming language platform independent? Explain with the help of neat diagram.	(10)
	A)		
	B)	What are primitive data types of Java? Explain any five of them with the help of proper example code.	(10)
2)		Create a class called Counter that contains a static data member to count the number of Counter objects being created. Also define a static member function called showCount() which displays the number of objects created at any given point of time. Illustrate this.	(8)
	A)		
	B)	Explain bitwise operators < < , >> and >>> with the help of example code and output of the code.	(12)
3)		What is instance variable hiding problem? How to resolve it? Support your answer with proper example code.	(8)
	A)		
	B)	Write complete Java code to find sum of two integers given at command line argument.	(8)
	C)	What are the usages of final key word in Java?	(4)
4)		Define a class Matrix with reference of 2D array as instance variable and member functions - insert( ) and symmetric( ). symmetric( ) method prints "SYMMETRIC" if the matrix is symmetric or "NON SYMMETRIC" if the matrix is non symmetric. Create another class MatrixMain which includes main ( ). Call insert( ) in main( ) to populate matrix and call symmetric( ) to check whether given matrix is symmetric or not.	(10)
	A)		
	B)	What are the differences between function overloading and function overriding? Support your answer with proper example code.	(10)
5)		Define an interface STACK with push( ) and pop( ) methods. Define a class	(12)

A) DynamicStack which implements STACK. DynamicStack has 1D array reference and top as instance variables and implements push( ) and pop( ).Use parameterized constructor to initialize instance variables.Implement the logic of growable stack in push method. Define class StackMain which includes main( ). Demonstrate stack operation through main( ) method.

B) What is variable length argument method? Define a variable length method which returns largest element to main( ) method. Write complete Java code for this. (8)

6) What are checked and unchecked Exceptions? Design a class (12)

A) ReserveTicket with an instance variable seatsavailable, and a method void reserve(int numberofseats). If `numberofseats' is greater than `seatsavailable' or `numberofseats' is less than 1 then throw a user defined exception SeatNotBookedException. Demonstrate exception handling in main( ).

B) What are the different stages of a thread life cycle? Explain with the help of neat diagram. (8)

7) Write a complete Java program to print table of 5 and table of 7 with the help of thread. Thread can be created either by implementing Runnable interface or by extending Thread class. (10)

A)

B) Write a complete Java program to copy contain of one file to another file. (10)

8) Write complete Java program for basic calculator using swing and event handling code. (20)

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