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MANIPAL INSTITUTE OF TECHNOLOGY

'A constituent unit of MAHE, Manipal)

III SEMESTER B.TECH. (CSE) END EXAMINATIONS, NOV 2018 SUBJECT: OBJECT ORIENTED PROGRAMMING [CSE 2104] (29/11/2018)

Time: 3 Hours

MAX. MARKS: 50

- ✤ Answer ALL the questions.
- ✤ Missing data may be suitably assumed.
- **1A.** Explain the following with examples:
 - i) short-circuit logical operators ii) type conversion in assignments 3M 2M
- **1B.** With an example, explain labelled break statement.
- Define a class "Employee" with two private members namely 1C. empNum(int) and empSalary(double). Provide a parameterized constructor to initialize the instance variables. Also define a static method named 'getEmployeeData()' which constructs an Employee object by taking input from the user and returns that object. Demonstrate the usage of this method in 'main' and thereby display the values of the instance variables. 3M 2M

1D.	Explain	finalize ()	method	with	an	example	program.
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- **2A.** Create a class Figure which cannot be instantiated, with a method area and two integer dimensions. Extend this class to inherit three more classes Rectangle, Triangle and Square. Show how the area can be computed dynamically during run time for Rectangle, Square and Triangle to achieve dynamic polymorphism. 3M
- Explain a for-each style for loop and show how it can be used to read the 2B. elements of an array. 2M 2M
- What is a Package? How a package is created? 2C.
- 2D. Define a class Max with the following methods
 - i) max (which finds maximum among three integers and returns the maximum integer)
 - ii) max (which finds maximum among three double numbers and returns the maximum double)

Place this in a package called p1. Let this package be present in a folder called "myPackages", in your present working directory. Write a main method to use the methods of Max class in p1. Write and explain the command you use to create package.

3M

3A.	Explain synchronization and how it is achieved in multithreading.	3M
3B.	Explain with example: a) sleep() b) wait() c) join() d) is Alive()	4M
3C.	Write a complete program for addition of elements of Matrix (n * m). Each row sum is computed by a different thread and the main thread adds rowSums to get the sum of matrix elements. Demonstrate the classes you have created by taking input from the user and displaying the input matrix and the sum of all the elements of the matrix.	3М
4A.	Write a complete program to write binary data (int, double, boolean) to a file and read the same and print on the console using DataInputStream and DataOutputStream classes. Use try with resources.	4M
4B.	Create a generic interface with push,pop, isEmpty, isFull methods for stack and a generic stack class to implement the same with necessary instance variables and constructor. Write a test class to demonstrate stack for integers and strings.	4M
4C.	Explain with example i) wildcards ii) raw type in generics .	2M
5A.	What are events and listeners in Java? Explain any two event classes and corresponding listener interfaces.	3M
5B.	Explain with example, the exception handling mechanism in java.	3M

5C. Write a swing application program to perform arithmetic operations. GUI should be as shown below. On clicking the button the corresponding operation should be performed and the result should be displayed in the lower most label. Use the event dispatching thread to display the GUI.

<u></u>		\times				
first number:						
20						
second number:						
5						
	add					
subtract						
	multiply					
	divide					
PROUCT is :100						

4M