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**OPEN BOOK ASSESSMENT
JUNE SEMESTER 2021**

**DISTRIBUTED AND PARALLEL COMPUTING
(CSC2623/CSC2624)**

(TIME: 2 HOURS)

MATRIC NO. :

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IC. / PASSPORT NO. :

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LECTURER : MANOJ GAUTAM

GENERAL INSTRUCTIONS

1. This question booklet consists of 3 pages including this page.
2. Answer **ALL** questions in the **ANSWER BOOKLET**.
3. Please refer to following format while answering the Questions:
 - a. Answers should be in Font: Times New Roman, Font size: 12 and single line spacing.
 - b. Write the Question number clearly.
 - c. Start new answer on a Fresh Page.

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(60 MARKS)

There are FIVE (5) questions in this section. Answer ALL Questions in the ANSWER BOOKLET.

1. Most programming problems have several parallel solutions. The best solution may differ from that suggested by existing sequential algorithms. Explain the design methodology described by Foster to design a machine-independent parallel program.

(8 marks)

(CLO3:PLO6:C3)

2. OpenMP allows you to parallelize your code with minimal effort. Write an OpenMP program to print the message given below by different threads.

Parent: 4 Thread running

Thread # 2: running

Thread # 3: running

Thread # 1: running

(7 marks)

(CLO2:PLO4:C2)

3. The Java Remote Method Invocation (RMI) system allows an object running in one Java virtual machine to invoke methods on an object running in another Java virtual machine. RMI provides for remote communication between programs written in the Java programming language. Write a complete Java RMI program to compute the roots of a quadratic equation $ax^2 + bx + c$ such that the equation coefficients a , b and c are passed to the remote *String computeRoot(double a, double b, double c)* method from the client side.

(Note: Interface name should be QuadraticComputation)

(15 marks)

(CLO3:PLO6:C3)

4. A socket is one end-point of a two-way communication link between two programs running on the network. Write a TCP client and a server socket program to compute the power of a number sent by the client to the server

(Note: server must listen on port 3000)

(15 marks)

(CLO3:PLO6:C3)

5. Cache Memory is a special very high-speed memory. It is used to speed up and synchronizing with high-speed CPU. Explain the cache design issues from computer architecture perspective.

(15 marks)
(CLO3:PLO6:C2)

***** END OF QUESTIONS *****