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| Faculty of Engineering & Technology | | | |
| Ramaiah University of Applied Sciences | | | |
| Department | Computer Science and Engineering | Programme | B. Tech. in Computer Science and Engineering |
| Semester/Batch | 6th /2017 | | |
| Course Code | CSE301A | Course Title | Distributed Systems |
| Course Leader | Chaitra S | | |

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| Assignment | | | | | | | | |
| Register No. | | |  | Name of Student | |  | | |
| Sections |  | **Marking Scheme** | | | Max Marks | | First Examiner Marks | Second Examiner Marks |
| Part-A | A1.1 | Design of banking application | | | 05 | |  |  |
| A1.2 | Implementation of banking application | | | 05 | |  |  |
| A1.3 | Testing of the developed banking application | | | 02 | |  |  |
| A1.4 | Demonstration | | | 05 | |  |  |
|  | **Part-A Max Marks** | | | **17** | |  |  |
| Part-B | B1.1 | Importance of RPC | | | 03 | |  |  |
| B1.2 | Importance of RMI | | | 03 | |  |  |
| B1.3 | Differences between RPC and RMI | | | 02 | |  |  |
|  | **Part-B Max Marks** | | | **08** | |  |  |
|  | **Total Assignment Marks** | | | | **25** | |  |  |

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| **Course Marks Tabulation** | | | | |
| **Component- 1(B) Assignment** | **First Examiner** | **Remarks** | **Second Examiner** | **Remarks** |
| A |  |  |  |  |
| B |  |  |  |  |
| **Marks (out of 25 )** |  |  |  |  |
| Signature of First Examiner Signature of Second Examiner | | | | |

**Please note:**

1. Documental evidence for all the components/parts of the assessment such as the reports, photographs, laboratory exam / tool tests are required to be attached to the assignment report in a proper order.
2. The First Examiner is required to mark the comments in RED ink and the Second Examiner’s comments should be in GREEN ink.
3. The marks for all the questions of the assignment have to be written only in the **Component – CET B: Assignment** table.
4. If the variation between the marks awarded by the first examiner and the second examiner lies within +/- 3 marks, then the marks allotted by the first examiner is considered to be final. If the variation is more than +/- 3 marks then both the examiners should resolve the issue in consultation with the Chairman BoE.

**Assignment**

**Instructions to students:**

1. The assignment consists of Part A –**1** Question.
2. Maximum marks is **25**.
3. The assignment has to be neatly word processed as per the prescribed format.
4. The maximum number of pages should be restricted to **10**.
5. The printed assignment must be submitted to the course leader.
6. **Submission Date: 9th March 2020**
7. **Submission after the due date is not permitted.**
8. **IMPORTANT**: It is essential that all the sources used in preparation of the assignment must be suitably referenced in the text.
9. Marks will be awarded only to the sections and subsections clearly indicated as per the problem statement/exercise/question

**Preamble**

This course prepares the students to gain a thorough knowledge to design and synthesise reliable and secure distributed and cloud computing applications. Transactions, timing & synchronisation, coordination & consensus for developing distributed transactions and data bases are discussed in detail. Virtualisation and cloud technologies for building scalable distributed systems and applications are covered.

**PART A 17 Marks**

**Scenario:** Consider an online client-server based banking application, where customers perform transactions like balance enquiry, deposit and money transfer. A single server maintains all the accounts of customers. Multiple clients can access the server at the same time to invoke the above transactions. Design and implement the banking application so that all the concurrent transactions invoked by all the customers reflect correct and consistent states of account balance in all customers’ accounts.

Your report should emphasize on:

**A1.1** Design of an effective solution to the above scenario and description of techniques used

**A1.2** Implementation of banking application to reflect correct and consistent states of account balance when multiple clients initiate transactions.

**A1.3** Testing of the developed banking application

**A1.4** Demonstration

**Part B 08 Marks**

Refer to appropriate literature and write a document about

**B1.1** RPC, the need for it and two sample programs

**B1.2** RMI, the need for it and two sample programs

**B1.3** Similarities and differences between RPC and RMI.

1. r a given processor bound workload the frequencies of instructions move (MOV),
2. floating add (FADD), and floating multiply (FMUL), and the corresponding instruction run times,
3. for a given processor are:
5. Instruction MOV FADD FMUL Others
6. Frequency [%] 30 10 10 50
7. Time [nanosec] 100 300 600 160
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9. floating add (FADD), and floating multiply (FMUL), and the corresponding instruction run times,
10. for a given processor are:
12. Instruction MOV FADD FMUL Others
13. Frequency [%] 30 10 10 50
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