



MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2017/2018

FOURTH YEAR FIRST SEMESTER EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

CITY CAMPUS - EVENING

CIT 209: 411: DISTRIBUTED SYSTEMS

Date: 5th March, 2018

Time: 5.30 - 8.30pm

INSTRUCTIONS:

- Answer ALL Questions in Section A and any other TWO in Section B
- Use a new page for every question attempted and indicate number on the space provided on the page of the answer sheet
- Fasten together all loose answer sheets used
- No mobile phones in the examination room



SECTION A: ANSWER ALL QUESTIONS

Question one (30 marks)

- a) Briefly explain five reasons that motivate the use of distributed systems (5 marks)
- b) State the importance of transparency in distributed systems. Describe the types of transparencies that can be offered by distributed systems (6 marks)
- c) Identify and briefly explain three styles of exchange protocols. (6 marks)
- d) Use a block diagram to explain the role of client and server stub procedures in remote procedure call (RPC). (7 marks)
- e) State and briefly explain three main types of distributed systems using relevant examples (6 marks)

SECTION B: ANSWER ANY TWO QUESTIONS

Question Two (20 marks)

- a) Explain the roles played by any five CORBA Services. (10 marks)
- b) State and briefly explain any four Issues with object-oriented middleware. (4 marks)
- c) Name six application domains connected with networking and provide an example of a distributed system in each domain. (6 marks)

Question Three (20 marks)

- a) With the aid of a well labeled diagram, explain the roles of the components of file service architecture. (10 marks)
- b) Discuss the requirements of a distributed file system. (10 marks)

Question Four (20 marks)

Discuss the challenges of distributed systems. (20 marks)

Question Five (20 marks)

Architectural Models of distributed systems are concerned with making the system reliable, manageable, adaptable and cost-effective. Discuss the architectural elements of a distributed system using appropriate diagrams where necessary. (20 marks)