



UNIVERSITY OF EMBU

2017/2018 ACADEMIC YEAR

SECOND SEMESTER EXAMINATIONS

SECOND YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE (COMPUTER SCIENCE)

CSC 322: NETWORK AND DISTRIBUTED PROGRAMMING

DATE: APRIL 4, 2018

TIME: 2:00 PM – 4:00 PM

INSTRUCTIONS:

Answer Question ONE and ANY other two Questions

QUESTION ONE (30 MARKS)

- a) Describe the following Terms as used in Distributed Computing Environment (10 marks)
- i) Distributed system
 - ii) Concurrency:
 - iii) System
 - iv) Synchronization
 - v) Remote Procedure Call (RPC)
- b) Explain any 5 Challenges Facing Designers of Distributed systems (10 marks)
- c) Discuss 5 issues with distributed systems (10 marks)

QUESTION TWO (20 MARKS)

- a) Describe the term transaction (2 marks)
- b) Explain the following concepts in relation to Transparency (8 marks)
- i) Access Transparency-

- ii) Concurrency Transparency-
 - iii) Failure Transparency-
 - iv) Migration Transparency-
- c) Discuss about the sleeping barber in “classical IPC problems” and give at least two application areas. (10 marks)

QUESTION THREE (20 MARKS)

- a) Outline advantages and disadvantages of Distributed system over centralized systems. (8 marks)
- b) Explain the following distributed models (6 marks)
- i) Architectural models
 - ii) Fundamental models
 - iii) Physical models
- c) describe any 3 types of distributed systems (6 marks)

QUESTION FOUR (20 MARKS)

- a) Discuss Network Layers in the context of Network Protocols (8 marks)
- b) Differentiate between the following terms; (8 marks)
- i) Message Passing
 - ii) Remote Procedure Call (RPC)
- c) Discuss DOS in detail (4 marks)

QUESTION FIVE (20 MARKS)

- a) Describe Distributed system in the context of an ERP system (5 marks)
- b) Discuss middleware (5 marks)
- c) Write a program and discuss about the reader’s and writer’s’ problem (10 marks)

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