



MACHAKOS UNIVERSITY

Special/Supplementary Examinations 2016/2017

BACHELOR OF SCIENCE COMPUTER SCIENCE

SCO 410: DISTRIBUTED SYSTEMS

DATE: AUGUST 2018

TIME: 2 HOURS

INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS

QUESTION ONE

1. Distinguish between distributed and parallel Computing. (4 marks)
2. Explain the following characteristics of distributed systems
 - i. Transparency
 - ii. Openness
 - iii. Scalability (6 marks)
3. Most companies are implementing distributed systems as opposed to serial computing systems. Discuss three reasons why this is so. (8 marks)
4. Explain the following message passing methods in distributed computing
 - i. Synchronous
 - ii. Asynchronous (6 marks)
5. State six distributed system metrics. (6 marks)

QUESTION TWO

1. KCB wants to implement distributed systems in one of its newly opened branches.
Discuss three architectures that they may want to use in this implementation. (9 marks)
2. Explain four characteristics of a distributed operating system (8 marks)
3. State three resources that may be shared in a distributed system (3 marks)

QUESTION THREE

1. The interoperability among the resources in a distributed system is an integral part of the design of a distributed system. Explain three levels of compatibility that should be considered.
(6 marks)
2. Resource management refers to schemes and methods devised to make local and remote resources available to users in an effective and transparent manner. Explain three schemes that can be used to manage resources. (6 marks)
3. Explain four examples of distributed systems that have been implemented. (8 marks)

QUESTION FOUR

1. Two models are widely used to develop distributed systems, and the applications for distributed systems. They are message passing and remote procedure call. Discuss five design issues in remote procedure call. (10 marks)
2. Explain five characteristics of object oriented middleware in distributed systems (10 marks)

QUESTION FIVE

1. Discuss four advantages of distributed systems (8 marks)
2. Discuss the following issues in distributed data management
i. Local autonomy
ii. Location independence
iii. Fragmentation independence
iv. Replication independence (12 marks)