

**KENYA METHODIST UNIVERSITY**  
**End of Trimester 1 Examinations, April 2008**

**Faculty** : **Science and Social Studies**  
**Department** : **Computer and Information Science**  
**Course Code** : **COMP 443**  
**Course Title** : **Distributed Systems**  
**Time** : **2 hours**

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**Instructions: Answer question one and ANY OTHER TWO questions**

**Question 1**

- (a) Differentiate tightly coupled systems from loosely coupled systems (4 marks)
- (b) Discuss five strategies that can be implemented in process migration. (6 marks)
- (c) Outline four types of Client/Server Models. (4 marks)
- (d) Describe TWO types of user interfaces supported by Distributed File Service. (4 marks)
- (e) Distinguish between stateful servers from stateless servers. (4 marks)
- (f) What is marshalling in RPC. (2 marks)
- (g) List down two purposes of storing files. (2 marks)
- (h) Give the two formats of Inter-Process Communication. (2 marks)
- (i) Differentiate load balancing from process migration. (2 marks)
- (j) Briefly explain the difference between pre-emptive and non pre-emptive process migration. (2 marks)

**Question 2**

- (a) Define a distribute file system. (2 marks)
- (b) Briefly describe the eight distributed file service requirements. (8 marks)
- (c) Discuss five consistency models in distributed shared memory. (10 marks)

**Question 3**

- (a) Define the term transaction. (2 marks)
- (b) Discuss the main properties of distributed transactions. (8 marks)

- (c) State and explain five threats and forms of attack in distributed systems security (10 marks)

**Question 4**

- (a) Differentiate a process and a thread. (2 marks)
- (b) Briefly explain four advantages of a process over a thread. (8 marks)
- (c) Describe b use of diagrams the five distributed systems computing models. (10 marks)

**Question 5**

- (a) Using a diagram describe how RPC works in Distributed systems. (4 marks)
- (b) Briefly explain the difference between monolithic kernels and microkernel's. (4 marks)
- (c) State and explain six Implementation and design issues of Distributed Systems: (12 marks)