MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE

UNIVERSITY ORDINARY EXAMINATION

2020/2021 ACADEMIC YEAR

THIRD YEAR **SECOND** SEMESTER EXAMINATION FOR BCT, BIT &MCS

SCS 303 – DISTRIBUTED SYSTEMS

DURATION: 2 HOURS

Instructions to candidates:

1. Answer question One and Any Other Two questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 MARKS)

a) Define the term distributed system (2marks)
b) Explain the concept of process migration. (2marks)
c) State four goals of process migration. (4marks)
d) Elucidate THREE metric of a scalable system. (6marks)
e) Discuss any FOUR characteristics of a Distributed system. (8marks)
f) "Distributed systems are usually considered inherently insecure". Discuss the phrase based on the network system. (2marks)
g) Highlight any THREE – security threats that a distributed system can be exposed to and any THREE principle methods used in attacking distributed systems. (6marks)

SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)

a) Discuss the design goals of a distributed system. (8marks)
b) Define the term transparency as used in distributed systems and discuss various types of transparences. (10marks)
c) List the classes of distributed systems. (2marks)

QUESTION THREE (20 MARKS)

a) Discuss FIVE benefits of distributed –based systems over centralized systems. (10marks)
b) Define the term middleware and use a diagram to demonstrate how middleware works while stating its role in a distributed system. (10marks)

QUESTION FOUR (20 MARKS)

a) Explain how the bully algorithm of process election works in a distributed system. (10marks)
b) With aid of suitable diagram, discuss the grid architecture, clearly showing the responsibility of each level. (10marks)