



MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF COMPUTING INFORMATION TECHNOLOGY

UNIVERSITY SPECIAL/RESIT EXAMINATION

2021/2022 ACADEMIC YEAR

YEAR SEMESTER EXAMINATION FOR BACHELOR OF

SCS 405– REAL TIME APPLICATION

DURATION: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

1. Answer question one and any other two
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

QUESTION ONE (30 MARKS)

- a) Define the term Real-time Application. (2 mks)
- b) Explain in details any four characteristics of a Real-time application. (8 mks).
- c) Explain the categorization of Real time resources as used in real-time system. (6 mks).
- d) What are main responsibilities of a Real-Time Application (RTA). (4 mks)
- e) What are main responsibilities of a Real-Time Application (RTA). (10 mks)

QUESTION TWO (20 MARKS)

- a) Explain the two sources of Timing Constraints in RTS. (4 mks)
- b) In Real-Time Application, Timing Analysis is a virtual aspect. Explain the reason why we do timing Analysis in RTS. (10 mks)
- c) Explain three Real-Time Synchronization protocols. (6 mks)

QUESTION THREE (20 MARKS)

- a) Define the term deadlock as used in Real-time operating systems. (2 mks)
- b) Explain the mutual Deadlock problems. (8 mks)
- c) Explain any five activities that are periodic in Real-Time embedded and multi-media system (10 mks)

QUESTION FOUR (20 MARKS)

- a) Explain the four benefits of rate monotonic analysis in RTS. (8 mks)
- b) Explain how the analysis of periodic task is done. (4 mks)
- c) Explain the Deadline and Timing Analysis (8 mks)