



TECHNICAL UNIVERISTRY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATIONS FOR DEGREE IN:
BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY
(BTIT 12J – J-FT)

ICS 2305: SYSTEMS PROGRAMMING

END OF SEMESTER EXAMINATION

SERIES: APRIL 2015

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions.

Attempt question **ONE (Compulsory)** and any other **TWO** questions

Maximum marks for each part of a question are as shown

This paper consists of **TWO** printed pages

Question One (Compulsory)

- a) Explain with suitable examples the following concepts:
- (i) Architecture is the overall structure of the system (4 marks)
 - (ii) Architecture has components and connectors (4 marks)
 - (iii) Behavior of each software element is a part of the architecture (4 marks)
- b) Explain the various documentations you would require to carry out performance analysis of software architecture (4 marks)

c) Explain what you understand by the term software architecture (4 marks)

Question Two

a) Describe the pipe and filter specializations (4 marks)

b) List TWO examples of pipe and filter (4 marks)

c) Outline FOUR advantages of pipe and filter architecture (4 marks)

d) State TWO concerns of the software architecture for the stakeholders. Ensure to include FOUR of the stakeholders (8 marks)

Question Three

a) Outline THREE key importance of software architecture (3 marks)

b) Outline THREE similarities between software and hardware architecture (3 marks)

c) State THREE differences between software and hardware architecture (3 marks)

d) Write short notes on object oriented style considering the following key points: applications components, connections, invariants, advantages and disadvantages (11 marks)

Question Four

a) Explain with the help of suitable diagram of architectural trade-off analysis method (ATAM) (10 marks)

b) Define the term architectural analysis (2 marks)

c) Discuss the various architectural analysis goals with appropriate examples (8 marks)

Question Five

a) Explain the concept of Robust software architecture (4 marks)

b) Specify software architecture requirements (4 marks)

c) Discuss the THREE various architectural structures and views (6 marks)

d) State the features that make a good architecture (6 marks)