



(Knowledge for Development)

KIBABII UNIVERSITY COLLEGE

A CONSTITUENT COLLEGE OF

MASINDE MULIRO UNIVERSITY OF

SCIENCE AND TECHNOLOGY

UNIVERSITY EXAMINATIONS

2014/2015 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER

MAIN EXAMINATION

FOR THE DEGREE OF

BACHELOR OF SCIENCE COMPUTER SCIENCE

COURSE CODE: CSC 120

COURSE TITLE: COMPUTER ORGANIZATION

DATE: 4th MAY, 2015

TIME: 8.00-10.00 AM

INSTRUCTIONS TO CANDIDATES

Answer Question One in Section A and Any other TWO (2) Questions in Section B

TIME: 2HRS

Instructions:

Answer Question One and Any Other Two

Question One:

- a) Using an illustration, describe the classical organization of the CPU. (5mks)
- b) In the context of cached memory system. Explain the performance factors hit ratio and miss penalty. Explain also the principle of locality and its relevance to cache memory performance. (5mks)
- c) List any four types of interrupts and describe the purpose of each. (4mks)
- d) Explain briefly the four advantages of file systems in the computing world. (4mks)
- e) Highlight the roles of system interface (3mks)
- f) What is a browser cache? Explain why modern web browsers maintain a cache of files. (4mks)
- g) Distinguish between low level language and high level language by giving relevant examples in each case. (3mks)
- h) What is virtual memory? (2mks)

Question Two:

- a) Describe the four structural components of the computer that form the basis of computer organization and architecture. In addition, explain the performance related issues for each of the components. (8mks)
- b) Identify any five registers in the CPU and describe their functions. (5mks)
- c) Explain the following as applied by cache memory: (4mks)
 - a. Cache hit
 - b. Cache miss
- d) Highlight three types of cache memory (3mks)

Question Three:

- a) Given the; Hit time=5ns, miss rate=10%, and miss penalty=100 ns, compute the average memory access time. (5mks)
- b) Briefly describe instruction pipelining and superscalar as a performance enhancement technique. (6mks)
- c) An instruction cycle may result in a number of activities. Suggest four of these activities. (4mks)
- d) What is a search engine? Briefly explain the main components of a search engine. (5mks)

Question Four:

- a) Describe three functions of a memory manager. (6mks)
- b) The Internet as a network of connecting many small networks consists of four layers. Identify and briefly explain with the help of a diagram the functions of these layers. In your explanation incorporate the protocols used in each layer. (10mks)

- c) Briefly explain four attributes of an html element. (4mks)

Question Five:

- a) In order to communicate with memory, a processor needs three types of bus connections. Briefly explain each of them. (6mks)
- b) Describe five types of ROM stating their applications. (5mks)
- c) Perform the following conversions:
- i. Convert binary 00011011 to decimal (2mks)
 - ii. Convert decimal 278 to binary (2mks)

Note: show your working

- d) What is an e-mail? Explain its working with the help of an example. (5mks)