(*Knowledge for Development*)

KIBABII UNIVERSITY

(KIBU)

UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR

END OF SEMESTER EXAMINATIONS
YEAR ONE SEMESTER ONE EXAMINATIONS

FOR THE DEGREE IN
(COMPUTER SCIENCE)

COURSE CODE : CSC 315

COURSE TITLE : COMPUTER ARCHITECTURE

DATE: 16/05/2022 **TIME: 09.00 A.M. – 11.00 A.M**

INSTRUCTIONS TO CANDIDATES

ANSWER **QUESTIONS ONE AND ANY OTHER TWO.**

QUESTION ONE (COMPULSORY) [30 MARKS]

a) Explain two elements of bus arbitration giving a reason which one improves computer performance [5 Marks]

b) Differentiate between computer architecture and computer organization [2 Marks]

c) State and explain the four basic function of a computer [4 Marks]

d) Define the following terms [3 Marks]

i) System clock

ii) Clock cycle

iii) Clock speed

e) Explain the functional components of computer [4 Marks]

f) Discuss any three memory access methods [6 Marks]

g) State cache write policy and explain the techniques used to implement it. [4 Marks]

h) What is RAID? [2 Marks]

QUESTION TWO [20 MARKS]

a) Describe strategies used in computer to replace a memory segment that is full [4 Marks]

b) What is the difference between DMA i/o and interrupt i/o [2 Marks]

c) Differentiate cache and register memory [3 Marks]

d) Differentiate between parallel and pipelining processing [4 Marks]

e) Discuss the reasons why peripheral devices are not directly connected to the system bus. [7 Marks]

QUESTION THREE [20 MARKS]

a) State any four functions of the i/o module [4 Marks]

b) Define virtual memory [2 Marks]

c) How does a data bus width affect the performance of a computer system [3 Marks]

d) Using a diagram explain the basic instruction execution cycle [5 Marks]

e) State and explain any three instruction operations [6 Marks]

QUESTION FOUR [20 MARKS]

a) Discuss three memory performance parameters [6 Marks]

b) Differentiate between SRAM and DRAM [4 Marks]

c) i. What is a computer register? [1 Mark]

ii. State and explain any three registers found in a computer [6 Marks]

d) Describe the following terms as related to main memory [3 Marks]

i. Temporal locality

ii. Spatial locality

iii. Sequential locality

QUESTION FIVE [20 MARKS]

a) Discuss the concept of Memory interleaving and give its advantages [4 Marks]

b) Define the following disc performance parameters [6 Marks]

i) Seek time

ii) Rotational delay

iii) Transfer time

c) State any five memory addressing modes. [5 Marks]

d) i. Explain what is an instruction

ii. Differentiate parts of an instruction

iii. What the significance of each part of an instruction with an example? [5 Marks]