



# UNIVERSITY OF EMBU

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2016/2017 ACADEMIC YEAR

SECOND SEMESTER EXAMINATION

FIRST YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN  
ANALYTICAL CHEMISTRY/INDUSTRIAL CHEMISTRY

SCI 104: FOUNDATIONS OF COMPUTER SCIENCE

**DATE: APRIL 6, 2017**

**TIME: 8:30 -10:30AM**

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**INSTRUCTIONS:**

**Answer Question ONE and ANY Other TWO Questions.**

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**QUESTION ONE**

- a) Discuss the uses of the following components (5 Marks)
- Arithmetic Logic Unit (ALU)
  - Control Unit
  - Registers
  - Plotter
  - Cache Memory
- b) List any **five** advantages of computers over human beings (5 Marks)
- c) Compare and contrast main memory and secondary memory (5 Marks)
- d) Convert the following into hexadecimal number system (5 Marks)
- $416_8$
  - $9412_{10}$

- e) With aid of diagrams, discuss any **two** network topologies (5 Marks)
- f) List and explain any **five** operations associated with files (5 Marks)

### QUESTION TWO

- a) Convert the following into decimal number system (10 Marks)
- i.  $2314_8$
  - ii.  $3871_8$
  - iii.  $8CD_{16}$
  - iv.  $BB9A_{16}$
  - v.  $111011_2$
- b) IT is a source of opportunity and advantage but also uncertainty & risk in an organization. Critically discuss this statement (10 Marks)

### QUESTION THREE

- a) Explain any **four** functions of operating systems. Additionally, give any **two** types of computer operating systems. (10 Marks)
- b) Explain any **five** examples of application software known to you and the functionalities provided by each software (10 Marks)

### QUESTION FOUR

- a) Computer networks have become a common occurrence in most organizations today. Describe **any five** advantages of having computer networks in organizations (10 Marks)
- b) Using a well-labeled diagram, show the main components of a computer system and how they are organized within a computer (10 Marks)

### **QUESTION FIVE**

- a) Explain any **five** factors used to decide the network topology to adopt when connecting computers (10 Marks)
- b) Electronic commerce transactions are becoming common place today as internet spreads across the globe. In your own words, discuss any **five** advantages of electronic commerce to end consumers (10 Marks)

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