



**UNIVERSITY EXAMINATIONS**

**FIRST YEAR EXAMINATION FOR THE AWARD DEGREE OF BACHELOR OF  
EDUCATION IN MATHEMATICS AND COMPUTER SCIENCE**

**COSC 111: COMPUTER SYSTEMS AND ORGANIZATION**

**STREAMS:**

**TIME: 2 HOUR**

**DAY/DATE: WEDNESDAY 11/12/2019**

**2.30 P.M – 4.30 P.M**

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**INSTRUCTIONS:**

**SECTION A (COMPULSORY)**

**QUESTION 1 (COMPULSORY) [30 MARKS]**

- a) Perform the following decimal arithmetic in binary  $136_{10} + 345_{10}$  (4 marks)
  
- b) Explain what the following terminologies with regard to computer applications.
  - i) Port (2marks)
  - ii) Motherboard (2marks)
  - iii) Software (2marks)
  - iv) RAM (2marks)
  
- c) Name FIVE characteristics of a computer system (5marks)
  
- d) Describe the steps of turning ON a computer that is connected to a UPS (5marks)
  
- e) With the help of a diagram in each case, explain function of FOUR input devices in a computer (8marks)

**SECTION B (ANSWER TWO QUESTION FROM THIS SECTION)**

**QUESTION 2 [20 MARKS]**

- a) Computers have evolved from the year 1938. Discuss the various computer generations, clearly indicating salient features in each generation (10marks)
  
- b) Explain the functions of the following register components in a computer -
  - i) MAR (2marks)

- ii) MDR (2marks)
- iii) AC (2marks)
- iv) PC (2marks)
- v) CIR (2marks)

**QUESTION 3 [20 MARKS]**

- a) Using an example of a fetch process, explain the steps of fetch executive cycle (8 marks)
- b) With reference to computer hardware devices:
  - i) Explain the term computer output device (2 marks)
  - ii) Explain THREE challenges that computer users are likely to face, if output devices are not attached to a computer. (6 marks)
- c) Explain what is a UPS, hence outline TWO benefits of connecting a computer through the UPS (4marks)

**QUESTION 4 [20 MARKS]**

- a) With the help of a diagram, explain the Von Neumann Architecture (10marks)
- b) Explain FOUR behaviors of a computer infected with virus (4marks)
- c) Highlight THREE main functions of a computer system (6marks)

**QUESTION 5 [20 MARKS]**

- a) A computer user can either store data in an internal or external computer storage device.
    - i) Define the term storage device. (2marks)
    - ii) Differentiate between external and internal storage device (3marks)
    - iii) Outline FIVE computer storage devices (5marks)
  - b) Explain the task of THREE busses found in a computer system. (6marks)
  - c) Explain TWO types of memories found in a computer (4marks)
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