

# MAKERERE UNIVERSITY

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## **CMP1103: INFORMATION & COMMUNICATION TECHNOLOGY**

BSc. Biomedical, Computer, Electrical & Telecommunications-1<sup>st</sup> Year

CAT11      TUESDAY 17<sup>th</sup> OCTOBER 2018      10:00AM-11:15AM (75 min)

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### **INSTRUCTIONS:**

Attempt all questions for 75 Marks.

Clear explanations and appropriate examples for full marks.

#One [30 marks]

- a) To what extent is C programming relevant to innovation in the engineering field? (4 marks)
- b) ICT and innovation intersect in the UN Sustainable Development Goal (SDG) 9 "Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation"
  - i) Write C program and use it to define part of an ICT innovation of your choice that is capable of addressing any UN SDG, preferably in Ugandan context. Note: The program must be capable of input, output and comparing at least two parameters. Proceed to describe the practical (real life) solutions offered by the chosen innovation. (12 marks)
  - ii) Differentiate between a linker and an assembler in programming. (2 marks)
- c)
  - i) What do OSI and TCP/IP stand for (2 marks)
  - ii) State four main difference between the two OSI and TCP/IP (4 marks)
  - iii) Describe any three media-centered layers in the OSI model and give an example of at least one protocol (6 marks)

#Two [25 marks]

- a) Detailed UN SDGs can be requested from email address [SDGpermissions@un.org](mailto:SDGpermissions@un.org) or URL: <https://www.un.org/sustainabledevelopment/development-agenda/#e9f619fad91cab434>
  - i) What is the structural difference between the web address and email address above? (7 marks)
  - ii) Explain the difference in the detailed processing of the requests in the two addresses above (indicate the protocol) (7 marks)
  - iii) Should the UN security office be concerned about security of the email communication? Why or why not (Give a reasons)? (5 marks)
- b) what netiquette attributes would you suggest to your colleague before they send the message? (6 marks)