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GABA CAMPUS - ELDORET

MAIN EXAMINATION

SEPTEMBER – DECEMBER 2021 TRIMESTER

FACULTY OF SCIENCE

BACHELOR OF SCIENCE

DEPARTMENT OF COMPUTER AND INFORMATION SCIENCE

CMT 102: FUNDAMENTALS OF COMPUTING

Date: December 2021

Duration: 2 Hours

Instructions: Answer Question **ONE** and any other **TWO** Questions

QUESTION ONE

- a) Define a Memory Cell. **(2 Marks)**
- b) Explain the basic characteristics of a computer system **(4 Marks)**
- c) Differentiate between Computer system software and application software. **(4 Marks)**
- d) SRAM requires a low power when not being accessed. Explain. **(2 Marks)**
- e) State the major difference between Dynamic RAM and Static RAM **(2 Marks)**
- f) Write short notes on the following:
 - i) Cache memory **(2 Marks)**
 - ii) Register memory **(2 Marks)**
 - iii) Main Memory **(2 Marks)**
 - iv) Secondary storage **(2 Marks)**
- g) Find the Octal equivalent of the following number systems.
 - i) 101110_2 **(2 Marks)**
 - ii) 545_6 **(2 Marks)**
 - iii) 235_{10} **(2 Marks)**
 - iv) $D3_{16}$ **(2 Marks)**

QUESTION TWO

- a) The operating system is a major software of the computer. Discuss its operational features. **(6 Marks)**
- b) Generation in computers is used to represent the varying hardware and software technologies. Discuss. **(8 Marks)**
- c) Explain the major difference between impact and non-impact printers **(6 Marks)**

QUESTION THREE

- a) Write the binary digits used to record the word BASE in BCD. **(4 Marks)**
- b) Draw a block diagram to illustrate basic organization of a computer system and explain the functions various units. **(6 Marks)**
- c) What is network topology? Describe four network topologies in common use. **(10 Marks)**

QUESTION FOUR

- a) The CPU is called the brain of the computer, with a well labeled diagram explain its components **(6 Marks)**
- b) Write short notes on the following:
- i) DRAM **(4 Marks)**
 - ii) SRAM. **(4 Marks)**
 - iii) Loader **(2 Marks)**
 - iv) Compiler **(2 Marks)**
 - v) Interpreter **(2 Marks)**

QUESTION FIVE

- a) Define Routing? **(1 Mark)**
- b) Discuss various types of computer networks. **(6 Marks)**
- c) Discuss computer programming. **(3 Marks)**

d) Write short notes on:

- i) Message switching (2 Marks)
- ii) Circuit Switching (2 Marks)
- iii) Packet Switching (2 Marks)
- iv) Computer Register (2 Marks)
- v) Motherboard (2 Marks)

END