

CICT PART I SECTION 1

INTRODUCTION TO COMPUTING

MONDAY: 30 August 2021.

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question.

QUESTION ONE

- (a) A keyboard is the most common input device which enables data and instruction to be input through the use of a variety of keys:

Required:

Describe the following keys found on a computer keyboard:

- (i) Function keys. (2 marks)
- (ii) Hotkeys. (2 marks)
- (iii) Explain two types of computer keyboards. (4 marks)
- (b) You are engaged as a consultant to select a suitable high performance computer for use by XYZ company.

Explain the following computer specifications (parameters) that you have identified for consideration by the management of XYZ company:

- (i) Processor : CPU cores : 8 (2 marks)
- (ii) Memory : 64GB, DDR4 (2 marks)
- (iii) CPU clock : 4.7 GHz (2 marks)
- (iv) Storage device : 2TB SSD (2 marks)
- (v) Interface : USB 3.0 (2 marks)
- (vi) Network : Gigabit Ethernet (2 marks)

(Total: 20 marks)

QUESTION TWO

- (a) Describe three application areas of Internet of Things (IoT). (6 marks)

- (b) A survey was conducted among 120 students regarding the top three social media platforms. The results reflected the following:

- 20 students do not use any of the three social media platform.
- 56 students use Facebook.
- 43 students use Instagram.
- 35 students use Twitter.
- 18 students use Facebook and Instagram.
- 10 students use Instagram and Twitter.
- 12 Students use Facebook and Twitter.

Required:

- (i) Draw a Venn diagram to represent the above information. (4 marks)
 - (ii) The number of students who use the three social media platforms. (1 mark)
 - (iii) The number of students who use Facebook only. (1 mark)
 - (iv) The number of students who use Instagram only. (1 mark)
 - (v) The number of students who use Twitter only. (1 mark)
 - (vi) If one student is chosen at random, determine the probability that the student uses Instagram or Facebook. (2 marks)
- (c) Identify the appropriate device for capturing the following data:
- (i) Item codes in a supermarket. (1 mark)
 - (ii) Details of a bank cheque. (1 mark)
 - (iii) Passport size photos of students into a computer system. (1 mark)
 - (iv) Audio input. (1 mark)

(Total: 20 marks)

QUESTION THREE

- (a) (i) Explain the term “shelfware”. (2 marks)
 - (ii) Propose two reasons why a software becomes shelfware. (2 marks)
- (b) The operating system uses applications called utilities which allow the user to manage the computer. There are different utility programs and they might vary across operating systems.

Required:

Identify two maintenance utility programs and two security utility programs. (4 marks)

- (c) Differentiate between first generation computers and third generation computers on the following criteria:
- (i) Technology. (2 marks)
 - (ii) Programming language. (2 marks)
 - (iii) Storage device. (2 marks)
 - (iv) Processing speed. (2 marks)
- (d) Highlight four features of command driven interface. (4 marks)

(Total: 20 marks)

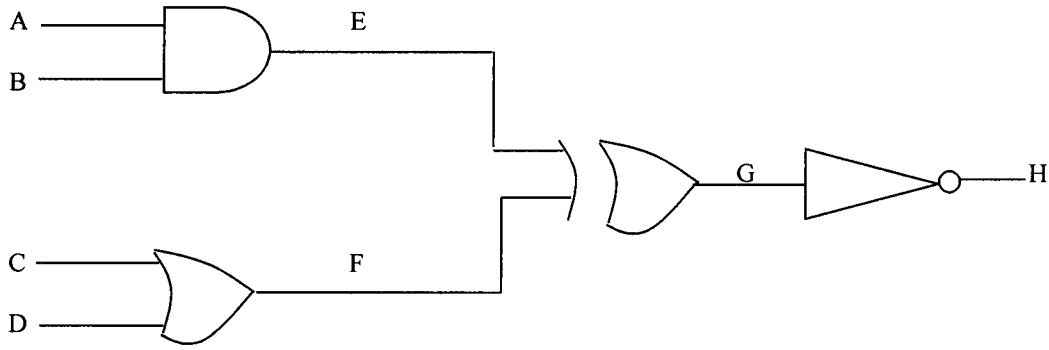
QUESTION FOUR

- (a) Data control during input and output is vital in data processing.

Required:

- (i) Explain the term parity bit as used in data control. (2 marks)
 - (ii) State two types of parity bits. (2 marks)
 - (iii) With the aid of a diagram, explain the role of parity bit. (4 marks)
- (b) With the aid of a diagram, explain the following terms in relation to auxiliary storage:
- (i) Block. (2 marks)
 - (ii) Sector. (2 marks)

(c) Draw a truth table for the following logic gate system:



(4 marks)

(d) Distinguish between “functional error” and “syntax error” in relation to software errors.

(4 marks)

(Total: 20 marks)

QUESTION FIVE

(a) (i) Explain the process of computer booting.

(2 marks)

(ii) Explain two types of computer booting.

(4 marks)

(b) Propose two benefits of uninterruptible power supply (UPS).

(2 marks)

(c) Perform the following computations:

(i) $413_{(8)} + 67_{(8)}$

(2 marks)

(ii) $10111_{(2)} + 1101_{(2)}$

(2 marks)

(iii) $1013_{(8)} - 645_{(8)}$

(2 marks)

(iv) $135_{(16)} - A8_{(16)}$

(2 marks)

(d) (i) Explain the term “silent installation” as used in software installation.

(2 marks)

(ii) Analyse the importance of a license agreement during software installation.

(2 marks)

(Total: 20 marks)

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