

*This paper is in two sections: A and B. Answer Question 1 in Section A and any other three questions in Section B.*

*Answer all the questions in the spaces provided in this question paper. At the end of the examination, you should submit the entire question paper to the invigilator.*

*Any candidate who tears off any part of the question paper will be severely penalized.*

*Whether you answer all the questions in this paper or not, hand in the entire question paper to the invigilator.*

*Credit will be given for clarity of expression and orderly presentation of material.*

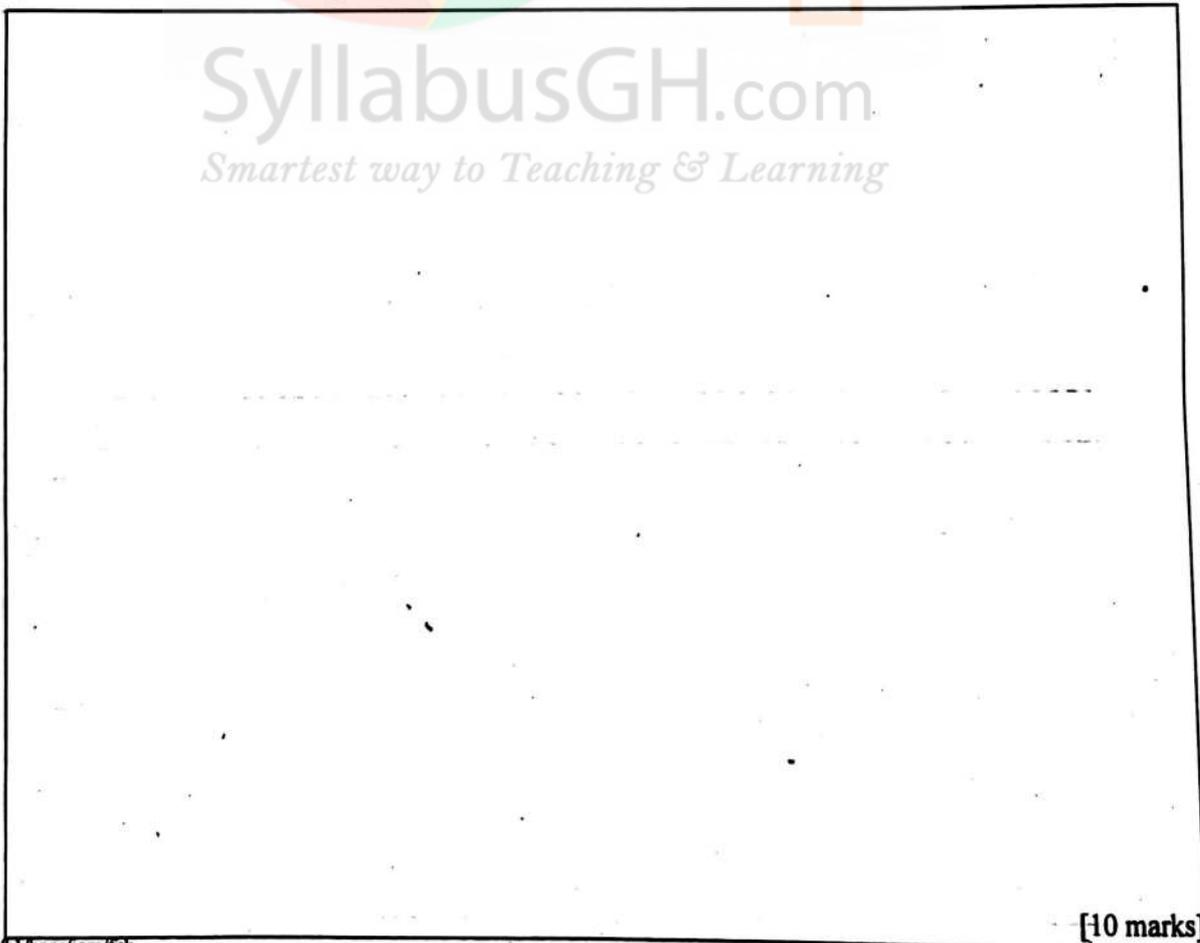
**SECTION A**  
**[24 marks]**

**Answer Question 1.**  
**[Compulsory]**

1. As a computing student, you are to program a robot to assist your colleagues to buy stationery from a shop. The sequence of activities undertaken to buy the stationery at the shop is as follows:  
Go to the stationery shop;  
Select the needed stationery;  
Check the price of the selected stationery;  
Go to the cash counter;  
Pay money to the cashier;  
Take the stationery along;  
Leave the shop.

- (a) Draw a flowchart using the sequence of activities.

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[10 marks]

(b) Suggest three modes of payment the students could use to pay the cashier.

- (i) .....
- (ii) .....
- (iii) .....

(c) Describe one of the modes of payment suggested in 1(b). [3 marks]

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[3 marks]

(d) Assume that there are four cashiers at the shop, and each of them uses a computer which is networked for their work. Draw a well labelled diagram to illustrate two network topologies that could be used to network the computers.

(i)



[2 marks]

(ii)

[2 marks]

- (e) Kofi, a student in your school visited the stationery shop for two days and his expenditure at the shop is as follows:  
 On Monday, he bought 4 exercise books for Gh¢ 60.00. On Tuesday, he bought 6 pens for Gh¢ 40.00.

- (i) Complete the Microsoft Excel worksheet using Kofi's two days expenditure at the stationery shop as shown in Figure 1.

	A	B	C	D
1	Days	Items	Quantity	Amount Gh¢
2	Monday			
3	Tuesday			
4	Total			

Figure 1

[2 marks]

- (ii) Write a formula in Microsoft Excel to compute Kofi's total amount spent for the two days at the stationery shop.

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[2 marks]

**SECTION B**  
 [36 marks]

Answer three questions only from this section.

- (a) Explain the concept of *perceptual computing* to colleagues in the computing club.

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[3 marks]

- (b) Most companies use data entry devices that capture machine-readable data directly into the computer system without using the keyboard.  
 List three of such data entry devices.

- (i) .....
- (ii) .....
- (iii) .....

[3 marks]

(c) A student is planning to compress a file on a computer so that it can be sent to a friend through e-mail.  
Suggest **two** techniques that can be used to compress the file.

(i) .....

(ii) .....

[2 marks]

(d) A student complained of eye strain due to prolonged use of the computer.  
State **two** possible ways to prevent the problem.

(i) .....

(ii) .....

[4 marks]

3. (a) Outline the steps on how to make the word **Computing** in Word processing document a hyperlink to the website address [www.waecgh.org](http://www.waecgh.org).

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[6 marks]



(b) Social media sites were created for friendships, learning, entertainment and other purposes. List two of the sites used for video-sharing.

(i) .....  
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(ii) .....  
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[2 marks]

(c) Outline two of the key principles governing information security.

(i) .....  
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(ii) .....  
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[2 marks]

(d) Describe how the following search techniques are used to search for information on the Internet:

(i) AND;  
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[3 marks]

(ii) NOT.  
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[3 marks]



5. (a) Covert  $10010_2$  to a decimal number.

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..... [4 marks]

(b) In the real-world environment, outline two applications of robotics in each of the following areas:

(i) Education;

(α) .....  
(β) ..... [2 marks]

(ii) Transportation.

(α) .....  
(β) ..... [2 marks]

(c) A school's robotic club is to construct a robot to be shown during a robotic exhibition organized by the District Education Office.  
List two components of the robot to be constructed.

(i) .....  
.....  
(ii) .....  
..... [2 marks]

(d) Artificial Intelligence is the ability of a computer or computer-controlled robots to perform tasks like human beings.  
List two abilities that make the computers or computer-controlled robots intelligent.

(i) .....  
.....  
(ii) .....  
..... [2 marks]

**END OF ESSAY TEST**