2 & 1

Full Name: ....

Index Number: ....

Signature: ....

Date of Examination: ....

THE WEST AFRICAN EXAMINATIONS COUNCIL
GHANA

Basic Education Certificate Examination

June 2025   COMPUTING 2 &1   2 hours
ESSAY AND OBJECTIVE

*Do **not** open this booklet until you are told to do so. While you are waiting, read and observe the following instructions carefully. Write your **name**, **index number**, **signature** and **date of examination** in **ink** in the spaces provided above.*

*This booklet consists of **two** papers. Answer Paper **2** which comes first, in the booklet and Paper **1** on your Objective Test answer sheet. Paper **2** will last **1** hour **15** minutes. Do **not** start Paper **1** until you are told to do so. Paper **1** will last **45** minutes. At the end of the examination, 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.*

For Examiner's Use Only	
Question Number	Mark
TOTAL	

PAPER 2
ESSAY
[60 marks]

1¼ hour

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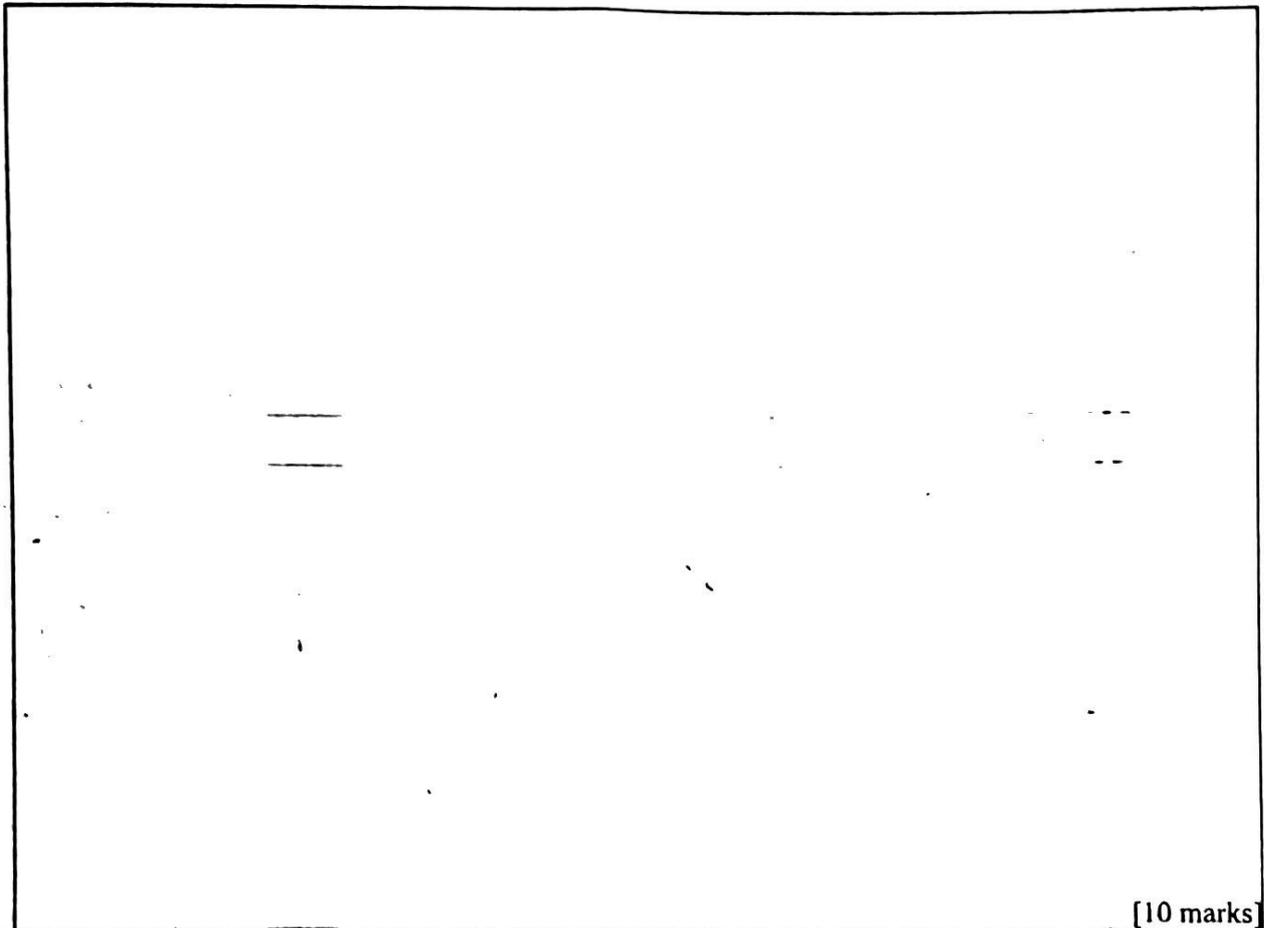
Credit will be given for clarity of expression and orderly presentation of material.

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.

[10 marks]

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

(i) ....

(ii) ....

(iii) ....

[3 marks]

(c) Describe **one** of the modes of payment suggested in 1(b).

....

....

....

....

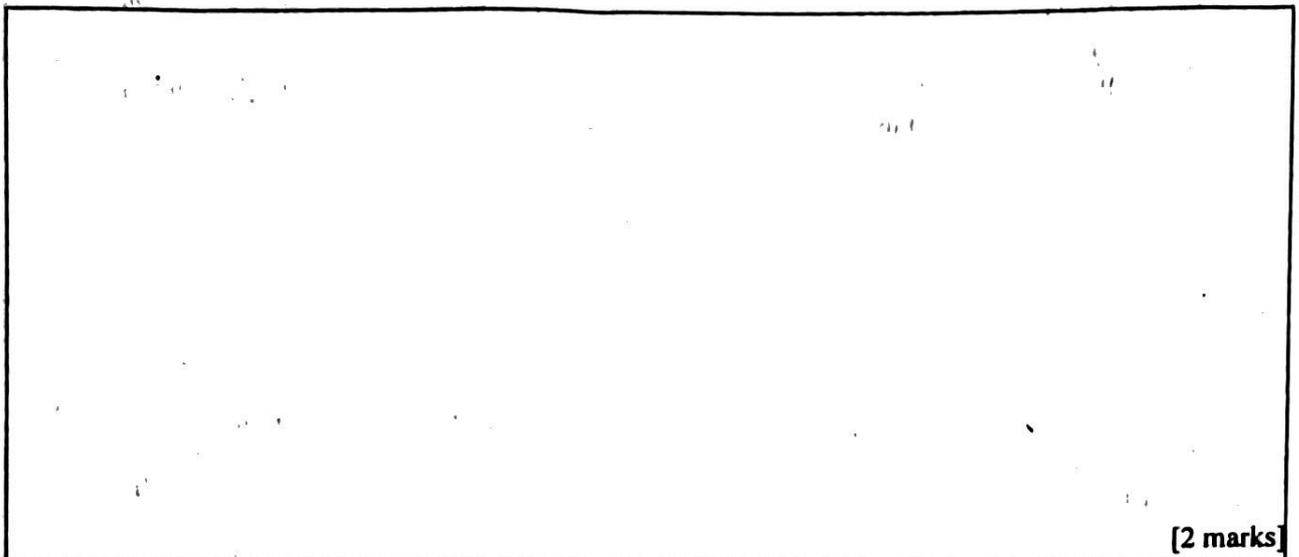...
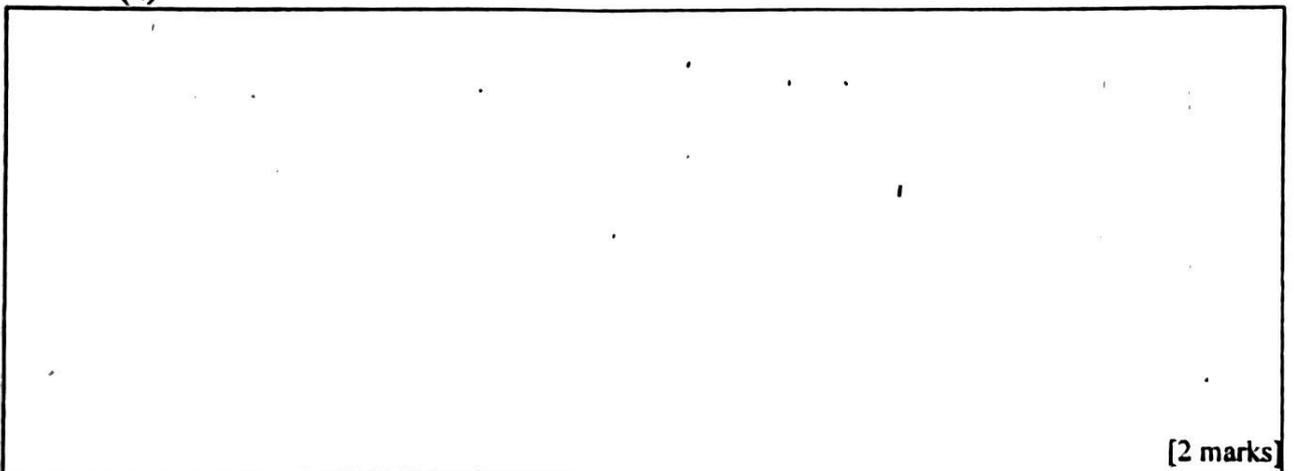
[3 marks]

(d) Assume that there are four cashiers at the shop, and each of them uses a computer which is net worked 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]

Turn over

(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 GhC
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.

....

....

[2 marks]

SECTION B
[36 marks]
Answer **three** *questions* **only** *from this section.*

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

....

....

....

....

....

[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.

....

....

....

....

....

....

....

....

....

[6 marks]

(b)   In designing a presentation, shapes allow the user to create complex objects on the slide.
List **two** categories in which objects found under the shape tool are grouped.

(i)   ....
....
....

(ii) ....
....
....

[2 marks]

(c)   A Microsoft Publisher assignment requires that texts are written over an image on a flyer.
Outline the steps to accomplish the assignment.

....
....
....
....
....
....
....
....
....
....

[4 marks]

4.   (a)   State one of the data communication models for networks.

....
....

[2 marks]

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

(i)   ....
....

(ii) ....
....

[2 marks]

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

    (i) ....

        ....

    (ii) ....

        ....

                                                                            [2 marks]

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

    (i)   AND;

        ....

        ....

        ....

        ....

        ....

                                                                                  [3 marks]

    (ii)   NOT.

        ....

        ....

        ....

        ....

        ....

                                                                                  [3 marks]

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

    ....

    ....

    ....

    ....

                                                                                  [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

DO NOT TURN OVER THIS PAGE UNTIL YOU ARE TOLD TO DO SO.

YOU WILL BE PENALIZED SEVERELY IF YOU ARE FOUND LOOKING AT THE NEXT PAGE BEFORE YOU ARE TOLD TO DO SO.

PAPER 1

OBJECTIVE TEST

45 minutes

*Answer **all** the questions on your Objective Test answer sheet.*

1. Use **2B** pencil throughout.

2. On the pre-printed answer sheet, check that the following details are **correctly** printed:
Your **surname** followed by your **other names**, the *Subject Name*, your *Index Number*, *Centre Number* and the *Paper Code*.

3. In the boxes marked *Candidate Number, Centre Number* and *Paper Code*, **reshade** each of the shaded spaces.

4. An example is given below. This is for a male candidate whose name is Daniel Nii DOTSEY. His *index number* is 772384188 and he is writing the examination at *Centre Number* 77234. He is offering *Computing* 1 and the *Paper Code* is 0711.

THE WEST AFRICAN EXAMINATIONS COUNCIL, GHANA
BASIC EDUCATION CERTIFICATE EXAMINATION
OBJECTIVE ANSWER SHEET

CANDIDATE NAME:	SUBJECT:
DOTSEY DANIEL NII	COMPUTING 1

1. Use 2B pencil, Press firmly.
2. Answer each question by choosing one letter and then , shade through the letter chosen like this ⊏A⊐ � ⊏C⊐ ⊏D⊐ ⊏E⊐
3. If you want to change an answer, erase your first mark completely.
4. If any four alternative answers are given for each question, ignore the letter E.
5. Your question paper may have fewer than 60 questions.

CENTRE NUMBER	CENTRE NUMBER	PAPER CODE	For Supervisors only. If candidate is absent shade this space.
7 7 2 3 8 4 1 8 8	7 7 2 3 4	0 7 1 1	

Answer all the questions.

*Each question is followed by **four** options lettered A to D. Find the **correct** option for **each** question and shade in **pencil** on your answer sheet the answer space which bears the same letter as the option you have chosen. Give only **one** answer to **each** question. An example is given below.*

A friend approached you to assist in buying a device to enable him capture data into a computer system. The **best** device to suggest to the friend is

A. stylus.
B. speaker.
C. monitor.
D. projector.

The correct answer is stylus, which is lettered A and therefore answer space A would be shaded.

⬛ CB⊐ CC⊐ CD⊐ CE⊐

Think carefully before you shade the answer spaces. Erase completely any answer you wish to change.

Do all rough work in this question paper.

Now answer the following questions.

1. An entry on a blog that contains texts, images or multimedia content is called
    A. post.
    B. name.
    C. status.
    D. account.

2. The term multimedia is widely used in several areas in the computing environment. What will you tell the computing teacher about the function of a multimedia feature in Word processing application?
    A. It converts texts into audio formats.
    B. It translates texts into different languages.
    C. It removes images from word document.
    D. It adds interactive elements like buttons and links.

3. The **correct** syntax of the IF() function in Microsoft Excel application is
    A. =IF(logical_test : [value_if_true], [value_if_false])
    B. =IF(logical_test, [value_if_true], [value_if_false])
    C. =IF(logical_test, {[value_if_true]}, {[value_if_false]})
    D. =IF(logical_test, TRUE ([value_if_true]), FALSE ([value_if_false]))

4. Robotic systems have components that relates to the functioning of the human organs. The component of the robot that acts like the human brain is the
    A. motors.
    B. sensors.
    C. batteries.
    D. controllers.

5. The purpose of the IF function in Microsoft Excel application is to
    A. calculate the average of a range of cells.
    B. manipulate text from multiple cells into one cell.
    C. perform a logical test and return a value for a condition.
    D. return the value from a specified row and column intersection.

6. A customer gave a new laptop to a technician to set accounts on windows that is required to make changes to all system settings. The **best** account type that you will advise the technician to consider is
    A. Guest.
    B. Remote.
    C. Standard.
    D. Administrator.

7. A student is very good at converting any integer to binary but finds it difficult to convert from hexadecimal to binary. Help the student to convert the hexadecimal number $A2_{16}$ to binary.
    A. 10000110_2
    B. 10100010_2
    C. 10010001_2
    D. 10001010_2

8. In a group presentation, a group was to demonstrate how to insert an online video into a slide they have created. The first step to be considered by the group is to click on the
    A.   Insert tab.
    B.   Design tab.
    C.   Online video.
    D.   Download video.

9. In a Desktop Publishing project work, a student's work contained more text than it can display. This situation is **best** described as
    A.   layout.
    B.   template.
    C.   overflow.
    D.   alignment.

10. The role of neural networks in Artificial Intelligence in modern technology is to
    A.   control robots within their environment for work and safety.
    B.   enhance Internet speed for fast movements of the robots.
    C.   create computer virus for robots to find solutions to them.
    D.   simulate human brain function for learning and problem-solving.

11. A designer consistently reminds his staff to use template in Desktop publishing because it helps to
    A.   create documents in unique ways.
    B.   provide a starting point for document design.
    C.   decorate the document for distribution to others.
    D.   provide an opportunity for users to print their work.

12. Computers have become smaller, faster, and more reliable due to the use of microprocessor in the
    A.   second generation.
    B.   third generation.
    C.   fourth generation.
    D.. fifth generation.

13. To make teaching and learning of computing more interactive, the teacher intends to demonstrate an activity by showing diagrams, images and videos on a large screen in the classroom. The **most** appropriate device to achieve this objective by the teacher is a
    A.   printer.
    B.   plotter.
    C.   monitor.
    D.   projector.

14. Text formatting options in Word processing applications include
    A.   subscript.
    B.   underline.
    C.   superscript.
    D.   strikethrough.

15. A school prefect approached the computing club to guide him design a presentation using Microsoft PowerPoint. The prefect intends to practice the presentation and record the time spent for each slide to make his presentation run smooth. The **best** feature the computing club will suggest to the prefect is
    A.   presenter notes.
    B.   presenter feature.
    C.   rehearse feature.
    D.   rehearse timings.

16. At the Internet cafe, Kofi connected his laptop to the Internet without using cable and Akua also connected her laptop to the Internet using cable. An example of Akua's connection type is
    A.   Infrared.
    B.   Bluetooth.
    C.   Wi-Fi adaptor.
    D.   Ethernet adaptor.

17. The computing teacher during computing class advised the students that, studying computer networking provides entrepreneurial opportunities. Which of the following statements in your opinion **justifies** the advise given to the students?
   A. Offering consulting services
   B. Developing video games online
   C. Creating social media platforms
   D. Designing smartphone Apps for schools

18. What value will the Microsoft Excel function = COUNT(A1:A10) return?
   A. 1
   B. 9
   C. 10
   D. 11

19. In a computing class, a video of a user who gained unauthorized access into an organization's computer system was shown and discussed. The user's act in the video is termed
   A. hacking.
   B. encryption.
   C. cyberbully.
   D. authentication.

20. Surfing the Internet requires the use of search engines which was designed to help users find
   A. information on the Internet.
   B. information from e-mail messages.
   C. information from the computer hard disk drive.
   D. information from files and folders on the computer.

21. After replacing his old smartphone with a new one, Muba cannot access most of his saved contacts. His friend advised that, he should have saved the contacts in an e-mail environment. The feature that would have allowed Muba to save and organize the contacts in the e-mail environment is referred to as
   A. draft.
   B. folders.
   C. attach files.
   D. address book.

22. A weekend assignment requires students to create a blog for the school. The **best** activity needed for the assignment is to
   A. pick the blog name and niche.
   B. display advertisement of the blog.
   C. provide consulting services to the bloggers.
   D. determine the product to sell on the blog.

23. A man shared his property to his children and wife in a particular ratio. The **most** appropriate chart type that can be used to represent the sharing of the property is
   A. pie chart.
   B. bar chart.
   C. line chart.
   D. scatter chart.

24. After the computing class, a colleague approached you to further explain to him how to reference a worksheet cell in Microsoft Excel. In the explanation, you mentioned that, to reference a cell, one need to use the cell
   A. value.
   B. address.
   C. content.
   D. function.

25. A quiz master asked participants to complete the statement: *while download folder is the default location for downloaded files, my recent folder is the default location for documents*
   A. just printed.
   B. to be saved.
   C. just worked on.
   D. to be worked on.

26. The Secretary to the Parliament of Ghana sits on an ergonomic chair to work in the office because it
   A. ensures proper sitting arrangements.
   B. makes the workplace looks attractive.
   C. aligns the chairs properly with the workstation.
   D. promotes proper body alignment and support.

27. Which of the following terminologies is associated with computer network?
   A. Junk
   B. Trojan
   C. Firewall
   D. Defragmenter

28. The graphic tablet is a kind of device used to capture
   A. RFID signals.
   B. QR code scans.
   C. magnetic card data.
   D. handwritings, drawings and inputs.

29. The purpose of a storage device in a computer system is for
   A. keeping and retrieving data.
   B. displaying graphic elements.
   C. executing computer programs.
   D. connecting devices to the Internet.

30. In the concept of programming, a comment in a program code is used to
   A. explain portions of the code.
   B. make the program run faster.
   C. change the output of the program.
   D. temporarily remove a line of code.

31. Bello formatted Microsoft Excel worksheet cells with different colours based on specific conditions and it was very beautiful. Which of the given features can a student use to achieve the same results as Bello?
   A. Conditional sorting
   B. Conditional filtering
   C. Conditional validation
   D. Conditional formatting

32. Most JHS students can send pictures to their friends through various social media platforms but find it difficult to send it through an electronic mail. The most appropriate feature in an electronic mail to accomplish this task is
   A. compose.
   B. categorize.
   C. attach files.
   D. draft messages.

33. The most powerful technological innovation made during the development of the fifth-generation computers was the use of
   A. vacuum tubes.
   B. integrated circuits.
   C. VLSI microprocessors.
   D. ULSI microprocessors.

34. A programmer has indented the codes in the program being written. The purpose of the indentation is to
   A. make the code difficult to read by users.
   B. hide the code from others when writing it.
   C. create bugs in the program to disturb the codes.
   D. show the start and end of a conditional statement.

35. Robots are used in many areas of the society. An example of the application of robots in the society includes
   A. virtual reality.
   B. machine learning.
   C. artificial intelligence.
   D. autonomous vehicles.

36. JHS students were given a project by their computing teacher to create a virtual museum for the storage of electronic artifacts. The possible tool for this assignment is
   A. cloud computing.
   B. social networking.
   C. augmented reality.
   D. artificial intelligence.

37. A user intends to create and customize diagrams in Microsoft PowerPoint application for a presentation. The best feature to help the user achieve the task is

A. Charts.
B. Shapes.
C. WordArt.
D. SmartArt.

38. Miss Fatima, the computing teacher taught the class basic programming terms. Explain to your friend what Miss Fatima said pseudocode is

A. compiled programming codes.
B. structured programming symbols.
C. flowchart decisions using symbols.
D. step-by-step outline of a program using informal language.

39. Zalia is very good at posting her pictures and location of where ever she goes on her social media platforms for her friends to see. The **potential** risk associated with Zalia's activities online is

A. identity theft.
B. learning difficulties.
C. strengthening friendships.
D. building a professional network.

40. A programmer uses a good algorithm to write a software. The algorithm being used is characterized by the following **except**

A. efficiency.
B. simplicity.
C. correctness.
D. complexity.

END OF PAPER