3.23 COMPUTER STUDIES (451)

3.23.1 Computer Studies Paper 1 (451/1)

SECTION A (40 marks)

*Answer **all** the questions in this section in the spaces provided.*

1 Write each of the following acronyms in full as used in computing. (2 marks)

(a) CAD

(b) DVD

(c) WORM

(d) POS

2 A school keeps student records in a database. The data is coded before entry. State **three** reasons why the coding is necessary. (3 marks)

3 Differentiate between Bcc and cc in an email. (2 marks)

4 State **three** risks posed by improper cabling in a computer laboratory. (3 marks)

5 List **two** career opportunities directly associated with computer networking. (2 marks)

6 A retailer uses a spreadsheet program to calculate profits. **Figure 1** shows the spreadsheet.

	A	B	C	D	E	F
1	**Items**	**Cost Price**	**Selling Price**	**Profit per Item**	**Items sold**	**Total Profit**
2	Item 1	305	350	45	32	1440
3	Item 2	100	120	20	45	900
4	Item 3	200	220	20	32	640
5	Item 4	107	130	23	89	2047

Figure 1

(a) Which row contains labels only? (1 mark)

(b) Write the formula that has been entered in cell F2. (2 marks)

7 State **three** reasons why an organisation may opt to develop its own software in-house rather than buy off-the-shelf software. (3 marks)

8 The topology below is formed by combining two types of topologies.

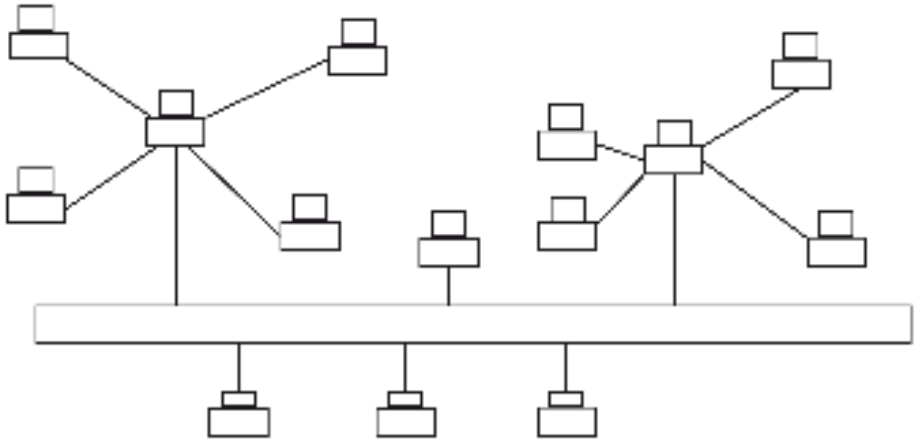

Figure 2

Figure 2

(a) Give **one** name for the combined topology in **figure 2**. (1 mark)

(b) Name the **two** topologies forming the combined topology in **figure 2**. (2 marks)

9 An organisation intends to replace an existing system by carrying out the process in stages.

(a) Name this implementation strategy. (1 mark)

(b) Give **two** reasons why the organisation is opting to use the implementation strategy in (a) above. (2 marks)

10 (a) Explain the importance of disk partitioning. (2 marks)

(b) Differentiate between pull-down menu and pop-up menu as used in Graphical User Interface (GUI) operating systems. (2 marks)

11 The 21st century has had many forms of ICT technologies improving the various means of communication. However, these changes have brought many challenges.
State **three** negative social impacts of these technologies. (3 marks)

12 Explain why a DTP application would be preferred to a word processing application when designing a publication.
(2 marks)

13 A computer is idle but the hard disk light is blinking, indicating some activity.
State **two** possible causes of this. (2 marks)

14 Describe **compatibility** as a factor to consider when purchasing a computer. (2 marks)

15 Identify the appropriate output device for the production of each of the following:

(a) receipts where carbon copies are required; (1 mark)

(b) an architectural drawing where precision is required; (1 mark)

(c) output where the user is visually impaired. (1 mark)

SECTION B (60 marks)

*Answer question **16** and any other **THREE** questions from this section in the spaces provided.*

16 (a) **Figure 3** shows a flowchart. Use it to answer the questions that follow.

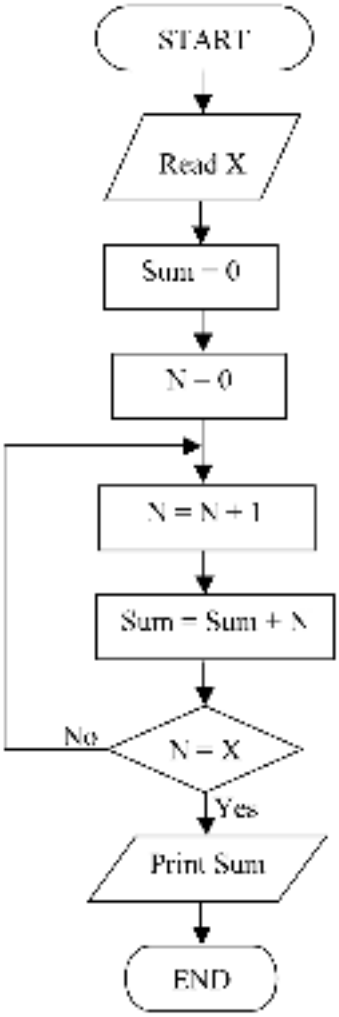

Figure 3

(i) Determine the output from the flowchart if:

I. X = 5; (2 marks)

II. X = 7. (2 marks)

(ii) Write a Pseudocode for the flowchart in **figure 3**. (5 marks)

(iii) Modify the flowchart so that it can be used to get the sum of integers between 50 and 100. (4 marks)

(b) List **two** programming language translators. (2 marks)

17 (a) Describe **three** types of validation checks as used in data processing. (6 marks)

(b) A company has opted to store its employees' personal details in a computer system. Describe **two** software methods that may be used to prevent unauthorized access to these details. (4 marks)

(c) (i) Describe each of the following data processing modes:

I. real-time; (2 marks)

II. interactive. (2 marks)

(ii) State an application area where real-time data processing mode is applied. (1 mark)

18 **Figure 4** shows an advert placed in a newspaper. Use it to answer the questions that follow.

Ksh 48,0000	NEW ARRIVALS - LAP TOP COMPUTER		CALL 0622 405405
	HDD	Windows 8	
	300 GB	Home Edition	
	RAM	**Free Suite**	
	512 MB	• Word processor	
	Clock Speed	• Spreadsheet	
	2.3 GHz x 2	• DTP	
	Optical Drive	• Presentation	
	DVD	• Internet browser	
	Screen	• Email	
	17 inches	Keyboard, Mouse, Modem	
		Parallel port USB, serial	
	OTHER PCs AVAILABLE		

Figure 4

(a) (i) Define a laptop computer. (1 mark)

(ii) The screen is said to be 17 inches. Explain what this means. (2 marks)

(b) State **one** advantage of having each of the following provided with a laptop.

(i) modem .....

(ii) USB .....

(iii) free suite .....

(3 marks)

(c) State the software package in the free suite which is most suitable for each of the following:

(i) computing budgets .....

(ii) creating documents .....

(iii) designing of brochures .....

(iv) records management.....

(4 marks)

(d) (i) State **three** advantages of using a computer to design an advert such as the one in **Figure 4**. (3 marks)

(ii) State **two** benefits of having the advert uploaded on the internet. (2 marks)

19 A worker is unable to travel to the office but may still be able to do the office work through telecommuting.

(a) Explain why the worker may use each of the following:

(i) email; (2 marks)

(ii) fax; (2 marks)

(iii) digital camera; (2 marks)

(iv) firewall. (2 marks)

(b) The worker needs to make regular backups of documents sent to the office. State **three** reasons for this. (3 marks)

(c) Explain **two** benefits that the employer will get by allowing this worker to do the office work through telecommuting. (4 marks)

20 (a) (i) Differentiate between one's complement and two's complement in data representation. (2 marks)

(ii) Explain the preference of binary number systems over decimal number systems in computers. (2 marks)

(b) (i) Using one's complement, subtract 100011_2 from 010010_2. (4 marks)

(ii) Convert the number 21.03125_{10} to its binary equivalent. (5 marks)

(c) Perform the following binary operations.
1101 + 11011 + 101 + 11111 (2 marks)