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)

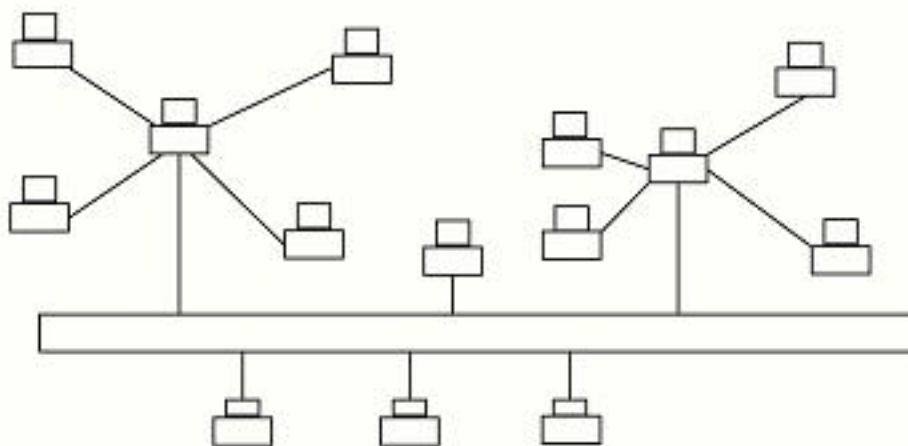**8** The topology below is formed by combining two types of topologies.

Figure 2

(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.

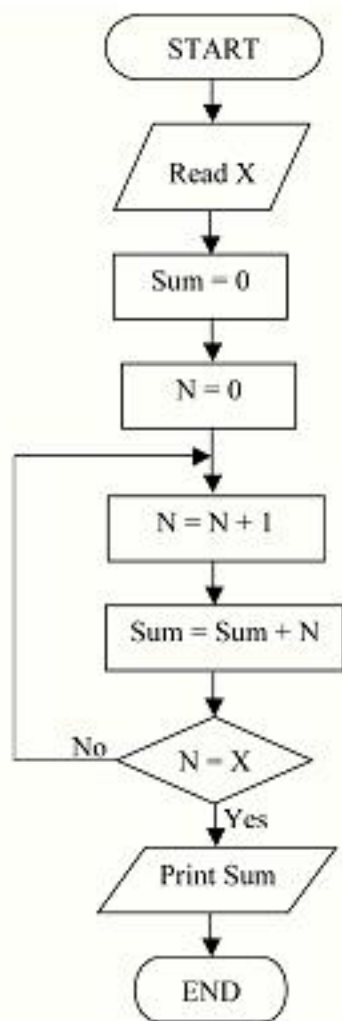Figure 3

(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)

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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.

NEW ARRIVALS - LAP TOP COMPUTER	
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	

Ksh 48,0000   CALL 0622 405405

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)

3.23.2 Computer Studies Paper 2 (451/2)

1   **Table 1**, **table 2** and **table 3** are extracts of records kept in a health centre for patients, doctors and consultations respectively.

Patients numbers	Names	Year of Birth	Gender
0120	Jean	1970	Female
0121	Paul	1982	Male
0122	Alice	1976	Female
0123	Allan	1998	Male

Table 1

doctors numbers	Names
520	Charles
521	Beatrice
522	James
523	Isaac

Table 2

Consultation Number	Consultation date	Patient Number	doctor Number	Ailment
101	07/09/2012	0120	520	flu
202	09/09/2012	0123	521	malaria
303	13/09/2012	0121	522	cough
405	14/09/2012	0120	520	flu
507	15/09/2012	0121	522	cough
608	16/09/2012	0122	521	malaria
704	16/09/2012	0123	523	measles
808	17/09/2012	0121	522	cough
901	30/09/2012	0122	521	malaria
1021	01/10/2012	0123	523	measles

Table 3

(a)   (i)   Using a database application package, create a database file named PATIENTSINFO.   (1 mark)

(ii)   Create three tables named PATIENTS, DOCTORS and CONSULTATIONS that will be used to store the data in **table 1**, **table 2** and **table 3** respectively.

(14 marks)

(iii)   Set the primary key for each table.   (3 marks)

(iv)   Create the relationships among the tables.   (2 marks)

(b) (i) Create a data entry form for each table. (3 marks)

(ii) Enter the data in **table 1**, **table 2** and **table 3** into the Patients, Doctors and Consultations tables respectively. (9 marks)

(c) (i) Create a query named PatientAge to display Patients' Names, Gender and Age on the year of visit. (4 marks)

(ii) Create a query named Beatricedetails to display Patients' Names, Ailment and Consultation Dates for patients treated by Doctor Beatrice. (3 marks)

(d) (i) Create a report to display the Patients' Names, Consultation Dates, Ailments and the Names of the Doctors consulted. The records in the report should be grouped by Patients' Names and the number of consultations by each patient should be displayed. (5 marks)

(ii) Title the report as "Consultations Per Patient" and save it as Consultations.

(2 marks)

(e) Print the following:

(i) Tables: Patients, doctors and consultations; (1 mark)
(ii) Queries: PatientAge and Beatricedetails; (1 mark)
(iii) Report: Consultations; (1 mark)
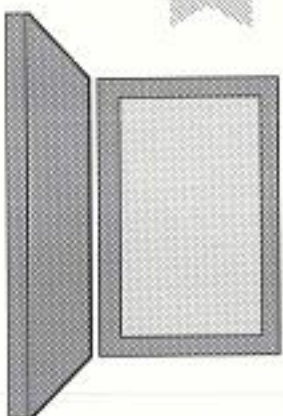(iv) Form: Consultations. (1 mark)

2 The **Figure** on **page 5** shows the design of the cover page of a book. It comprises of the front, the back and space in between where book pages will be attached. Use a desktop publishing package to design the cover page as follows:

(a) Create a new publication named book cover with the following page layout.

(i) paper size: A4,
(ii) orientation: landscape,
(iii) margins: 3 cm or 1.18 inches all round.

(4 marks)

(b) Enter the text and objects and format them as they appear in the **Figure**. The front and back sections of the book cover, each measures 18 cm (7.1 inches) by 12.5 cm (4.9 inches) and the space between them measures 1.7 cm (0.7 inches). (45 marks)

(c) Save and print the publication. (1 mark)

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Peters Sylvester
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