

NAME.....SCHOOL.....ADMNO.....

451/1

COMPUTER STUDIES

PAPER 1

MARCH 2016

2 ½ HOURS

Instructions to Candidates

- Write your Name, Index number and Admission number in spaces provided above.
- This paper consists **TWO** sections.
- Answer **all** questions in section **A**.
- Answer Question 16 and any other **THREE** Question from Section **B**
- All answers **MUST** be written in the spaces provided on this question paper.

For Examiner's Use Only

Questions	Maximum Score	Actual Score
1-15	40	
16	15	
17	15	
18	15	
19	15	
20	15	
TOTAL		

1. List four types of publications that can be designed using DTP software. (2mks)

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2. **State two** advantages of using a questionnaire for gathering information. (1mk)

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3. State the function of each of the following.

(a) Network Interface Card (1mk)

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(b) Modem (1mk)

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4. i) List down two safety precautions one should observe when entering a computer laboratory.(1mk)

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ii) Explain why an impact printer is suitable for printing of multiple copies.(2mks)

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iii) Give two ways that teachers could use a computer system to send work electronically to students who are absent from a lesson.(2mks)

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5. List **two** ways by which you can provide a common link or relationship between the tables in a database software. (1mk)

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ii) What is referential integrity (1mk)

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6. Explain the following terms. (2mks)

(a) Computer fraud

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(b) Alteration

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7. Give acronyms of the following computer terms. (2mks)

(i) UTP

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(ii) BNC

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(iii) RJ-45

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(iv) EMI

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8. a) How does an operating system manage computer memory. (1mk)

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b) Describe two functions performed by the CPU. (2mks)

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c) State two features that are available on a digital phone. (1mk)

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9. Define the following terms: (3mks)

(a) Biometric analysis

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(b) Teletext

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(c) Telecommuting

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10. Briefly explain the concept “information superhighway”, its services and potential growth.

(2mks)

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11. a) State two characteristics of a good database/file design (1mk)

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b) State two advantages of using a template to create a document. (1mk)

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12 The formula $\$A\$4 + C\$5$ is typed in cell D4 and copied to cell H6. Write down the formula

as it would appear in cell H7. (2mks)

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13. Distinguish between data verification and data validation. (2mks)

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14. (a) Name any two types of non printable guides in DTP.(1mk)

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b) Explain, using examples where appropriate, the meaning of these computer term.

(i) Smart card. (2mks)

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15.a) i. State the importance of column breaks as used in word processor.(1mk)

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ii) Differentiate between **COM ports** and **LPT ports**. (2mks)

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b) State the function of the following keys in the keyboard. (3mks)

i) TAB

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ii) HOME

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iii) END

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SECTION B

16. a Distinguish between procedural and non-procedural programming languages. (1mk)

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Read this algorithm.

(2mks)

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input A, B  
  if A > B then  
    T = A  
    A = B  
    B = T  
  endif  
output A, B
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(a) Write down the output if the following two numbers are input:

41, 38

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b) A school wants to monitor the number of hours spent by a class of 30 students on the Internet.(4mks)

Using pseudocode or otherwise, write an algorithm which will;

- for each student, record the times logged on and logged off
- calculate the length of time each student spends online
- calculate and output the average length of time per day spent by each student on the Internet.

b) i) Using pseudocode or otherwise, write an algorithm that will input the ID, weight (kg) and height (m) of 30 students, calculate their body mass index (BMI) and output their ID,

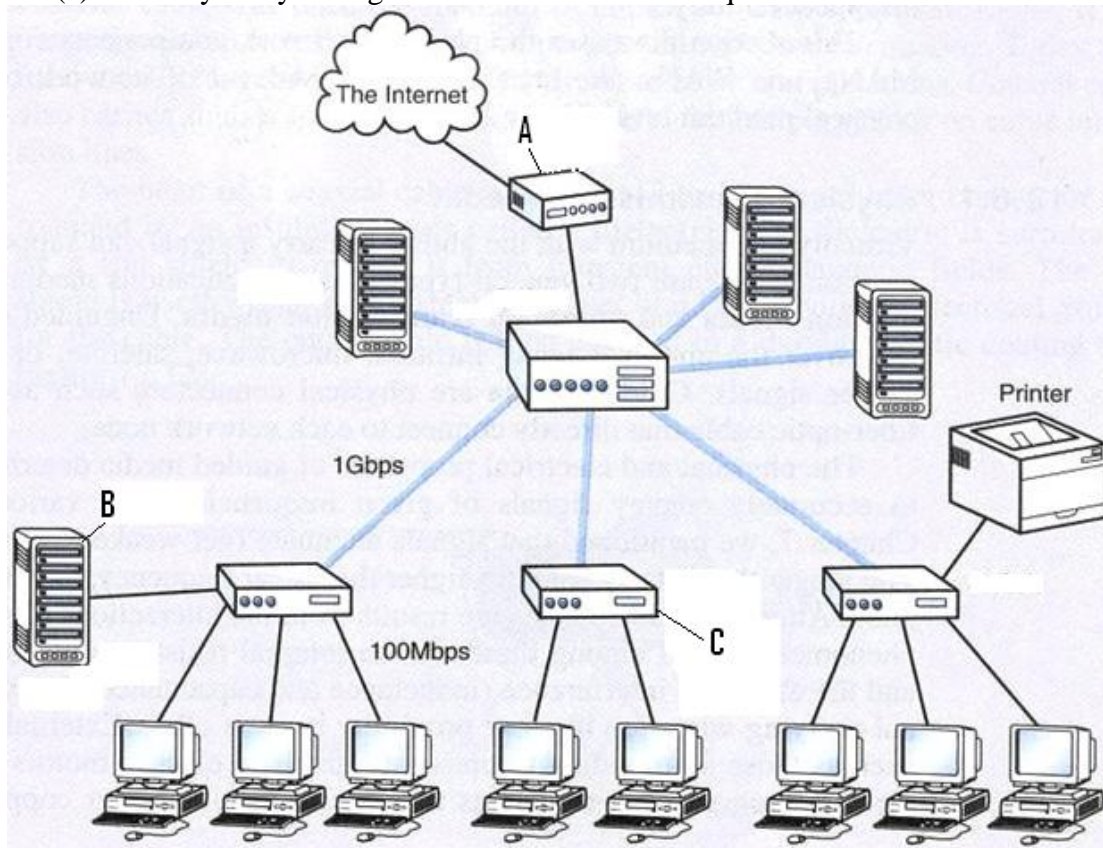
$$\text{BMI} = \frac{\text{weight in kilograms}}{(\text{height in metres}) \times (\text{height in metres})}$$

And a comment as follows:

A BMI greater than 25 will get the comment 'OVER WEIGHT', a BMI between 25 and 19 (inclusive) will get 'NORMAL' and a BMI less than 19 will get 'UNDER WEIGHT'. (4mks)

ii) Draw a flowchart to represent the pseudo code above. (4mks)

17. (a) Carefully study the figure below and answer the questions that follow.



(i) Name the devices labelled: (3mks)

A

B.....

C

(iii) State one function of each of the devices mentioned in (a) (i) above. (3mks)

A

B.....

C

(b) Identify the network topology in the figure 1 above (1mk)

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(ii) State two advantages and one disadvantage of the network topology in figure 1 above. (3mks)

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b) Explain three advantages and two disadvantages of e-banking. (5mks)

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18. A computer disk in drive D has folders for MEMOS for an administrator. Each of these folders is labelled according to the relevant months. The secretary created the folders for each months memo for each of access. Study the table below

MEMO 1	MEMO 2	MEMO 3
Warning	Inaccuracies	Careless talk
Lateness	Auditing	Inefficient
Assembly	Fraud	Meeting

(a) Assuming that the secretary was working from the disk, draw the corresponding tree structure (3mks)

(b) (i) The secretary wanted to create a folder to store a memo in Fraud folder. State the path for that folder.(2mks)

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(ii) Suggest how the secretary can ensure that the work in that disk is not spoilt. (1mk)

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(iii) The content of the file is not viewed by any other person apart from her. (1mk)

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c) i) Using appropriate examples, differentiate between distributed and centralized processing modes.(3mks)

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ii) State two advantages and two disadvantages of each of the processing modes in 17 (c) (i) above.(2mks)

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d) Sabina a form one student out of curiosity loads three programs namely Yahoo messenger, MSWord and Windows Multi media player. She realizes that she can use the three programs simultaneously i.e. typing her notes, listening to her favourite song and answering incoming chat messages. She does not understand how a computer can perform such magic. She approaches you for an explanation. Explain to her how the computer does this. (3mks)

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19. a) With the aid of a diagram, describe time sharing mode as used in computer data processing. (4mks)

b) A company's management has opted to use computers to process data. State four factors that the management needs to consider when selecting the company data processing mode. (4mks)

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c) The information below is maintained by the sales lady at the school canteen. Study it and answer the questions that follow.

	A	B	C
1	Item	units (kg)	value (ksh)
2	oranges	12	2000
3	mangoes	13	1000
4	tomatoes	12	1400
5	cabbages	15	2500

(a) Describe the basic data types used in this spreadsheet. (2mk)

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(b) Provide a single formula that would be used to

Count the number of items whose units are equal to 15 (1mk)

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Sum the values of items whose units are equal to 12 (1mk)

d) Describe three guidelines that should be followed when conducting an interview during information gathering. (3mks)

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20.a) Convert the number -28 into 8 bit

i) Signed magnitude representation (2mks)

ii) Two's complement (2mks)

b) Perform the arithmetic operation. (2mks)

$$110.11_2 + 11.011_2$$

c) Using two complement perform the following $27_{10} - 91_{10}$ (4mks)

d) In a certain 7-bit coding scheme the code for the letter "N" has a decimal equivalent of 78. Determine the code for the letter "Z" using the same coding scheme. (3mks)

e) State two reasons for using binary in digital technology. (2mks)

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