JUNIOR SECONDARY CERTIFICATE

COMPUTER STUDIES   **1502/1**

PAPER − Written   2 hour 30 minutes

Marks 130   **2017**

Additional Materials: Non-programmable calculator
                       Soft pencil (HB type is recommended)

INSTRUCTIONS AND INFORMATION TO CANDIDATES

- Candidates answer on the Question Paper in the spaces provided.
- Write your Candidate Number and Name in the spaces at the top of this page.
- Write in dark blue or black pen.
- You may use a soft pencil for any rough work, diagrams or graphs.
- Do not use correction fluid.
- Do not write in the margin *For Examiner's Use*.

- Answer **all** questions.

- Make sure that you receive the multiple choice answer sheet with your Candidate Number on it to answer section **A**.
- The number of marks for section **B** is given in brackets [ ] at the end of each question or part question.

For Examiner's Use
Marker
Checker

This document consists of **20** printed pages

Republic of Namibia

MINISTRY OF EDUCATION, ARTS AND CULTURE

SECTION A

- Answer this section on the multiple choice answer sheet provided in soft pencil
- There are **four** possible answers, **A**, **B**, **C** and **D** for each question
- Choose the **one** you consider correct and mark your choice.
- If you want to change an answer erase the one you delete completely with a soft eraser.

1   Which one of the following is both an output and input device.

   A   Data projector

   B   Graphics tablet

   C   Scanner

   D   Touch screen

2   A combination of eight Os and 1s is called a

   A   byte.

   B   gigabyte.

   C   kilobyte.

   D   megabyte.

3   Formatting a disk is a process of

   A   editing files saved on a disk.

   B   opening a disk to save a file.

   C   preparing a disk to store data.

   D   retrieving files stored on a disk.

4   A combination of text and graphics is called

   A   Desktop Publishing.

   B   Mail merge.

   C   Multi-programming.

   D   Multimedia.

5   Which one is **not** an example of a browser?

   A   Fire fox

   B   Internet explorer

   C   Opera mini

   D   Windows

6   Systems that must respond within a specific time limit to influence behaviour in the outside world are called

   A   batch processing systems.

   B   multi-access systems.

   C   multi-processing systems.

   D   real-time systems.

7 A step by step solution to a problem is called

    A   a programming language.

    B   an algorithm.

    C   a database program.

    D   a spreadsheet program.

8 Which type of software would you most likely use to create a letter?

    A   Computer aided design software

    B   Letter making software

    C   Spreadsheet software

    D   Word processing software

9 Which of the following is **not** a utility program?

    A   Backup program

    B   Disk repair program

    C   File defragmentation

    D   Spreadsheet program

10 Difficulty shifting focus between a display device and paper document is due to a health-related condition called

    A   Carpal Tunnel Syndrome (CTS).

    B   Computer Vision Syndrome (CVS).

    C   Repetitive Strain Injury (RSI).

    D   Tendonitis.

11 Which key removes the character which is highlighted by the cursor?

    A   Backspace

    B   Caps Lock

    C   Insert

    D   Shift

12 A record is made up of a number of .... , all having the same structure.

    A   characters

    B   fields

    C   files

    D   records

13 Which of the following is a small program that tells the operating system how to communicate with the computer?

    A   Driver

    B   Pixel

    C   RAM

    D   ROM

14 Which of the following readers is used to read characters on the bottom of the cheques?

    A   Barcode Reader

    B   Card Reader

    C   Magnetic Ink Character Reader

    D   Optical Mark Reader

15 What is the name used to represent a number or a quantity of changing?

    A   algorithm

    B   pseudocode

    C   sentinel value

    D   variable

16 A preformatted worksheet that has been designed according to specific criteria, to satisfy a particular need is called

    A   template.

    B   worksheet.

    C   workbook.

    D   workpage.

17 Which of the following is **not** a function of the operating system?

    A   creating a document

    B   managing files and memory

    C   managing input and output

    D   managing tasks

18 A set of keys on the keyboard that may be programmed to perform different special tasks are called

    A   Alphanumeric keys.

    B   Cursor control keys.

    C   Function keys.

    D   Numeric keys.

19 Software copyright is the

    A   legal restriction on the copying of programs.

    B   right to copy all software for a small fee.

    C   software that is copyrighted.

    D   software that is offered copyright-free.

20 www.wildlife.com.na is an example of a

    A   file Transfer Protocol

    B   hyperlink

    C   hypertext

    D   uniform Resource Locator

21 A standard procedure and format that two data communication devices must understand, accept and use to be able to communicate to each other is called

   A   access delivery.

   B   data exchange.

   C   protocol.

   D   transfer rules.

22 What is the field that uniquely identifies each record in a file and can be used to link tables to one another in a Database?

   A   Foreign key

   B   Identity key

   C   Primary key

   D   Special key

23 Tags that could be placed on an animal to record and track its movements are called

   A   Barcode reader.

   B   Biometric scanners.

   C   GPS.

   D   RFID.

24 When typing in a Word processor, the action of a pieces of text that do not fit on the same line to 'jump' over to the next line is called

   A   Insert.

   B   overwrite.

   C   scroll.

   D   word wrap.

25 What is the connection to the Internet that uses radio signals to provide high-speed Internet connection?

   A   cellular radio network

   B   DSL

   C   microwave

   D   Wi-Fi

26 When using Open Source software the user is allowed to

   A   distribute it freely without editing the source code.

   B   edit the source code and make it available for further editing.

   C   sell it as privately developed software with copyright protection.

   D   share it for a limited time where after people must pay to use it.

27 A program which translate a source code into an entire program at a time is called

   A   assembler.

   B   compiler.

   C   interpreter.

   D   low level language.

28 The repetition of a function or process in a computer program is called

    A   a flowchart.

    B   an iterations.

    C   a pseudocode.

    D   a variable.

29 Which binary number is equal to the decimal number 123?

    A   11 11 11

    B   11 110 11

    C   1010101

    D   100 0001

30 Which decimal number is equal to the binary number code 10010011?

    A   54

    B   112

    C   147

    D   168

[30]

SECTION B

• Write your answers in the spaces provided on the question paper.

---

1 Explain, using examples where appropriate, the meaning of the following computer terms.

(a) Booting

....

....

....

.... [2]

(b) Relational database

....

....

....

.... [2]

(c) Sentinal value

....

....

.... [2]

(d) High level language

....

....

.... [2]

(e) Operating System

....

....

....

.... [2]

[10]

2 Define the following Operating System terms

   (a) (i) *Command line interface*

      ....

      .... **[1]**

   (ii) *Graphical User Interface*

      ....

      .... **[1]**

(b) At Namtextiles, there are two main departments, the human resource department and sales department. Each department makes use of its own computer system.

   (i) Namtextiles employs some contract workers who are paid once every fortnight (14 days) based on the number of hours they worked.

     Name an operating system that is likely to be used by Namtextiles in the human resource department. Justify your answer.

     Name of operating system ....

     ....

     Justification: ....

     ....

     ....

     .... **[3]**

   (ii) In the sales department, Namtextiles makes use of EFTPOS to facilitate payments by customers at the checkout tills.

     Name and describe a type of operating system that can be used by Namtextiles in this department.

     Name of operating system ....

     ....

     Description: ....

     ....

     ....

     .... **[3]**

(c) Why would the I.T. administator at Namtextiles need the following types of utility software?

(i) Disk defragmenter

....

.... [1]

(ii) Disk compression software

....

.... [1]

(iii) Anti-virus software

....

.... [1]

[11]

3 A fisherman needs to find out the sales of fish for a week.

	A	B	C	D	E	F
1	Product	Quantity in kg	*Cost price per kg*	*Selling pice per kg*	*Total profit / loss (N$)*	Profit / Loss
2	Galjoen	20	*30.00*	*50.00*	*400.00*	Profit
3	Snoek	70	*35.00*	*30.00*		
4	Hake	50	*20.00*	*25.00*		
5	Pilchards	30	*10.00*	*5.00*		
6	Steenbras	###	*15.00*	*20.00*		
7	Kabeljou	50	*10.00*	*25.00*		
8	Total					

(a) Write down a cell which contains a

(i) value. .... [1]

(ii) label. .... [1]

(b) Write down the formula of the following cells

(i) E4 .... [1]

(ii) E8 .... [1]

(iii) F4 .... [1]

(c) How can the formula of cell E4 be copied into cells E5 to E9?

....

....

.... [2]

(d) The Total Profit / Loss (N$) need to be arranged so that the product with the highest profit is displayed on top.

Describe how that could be done.

....

....

.... [2]

(e) The ### sign is displayed in cell B8 state the reason why that sign is displayed in cell B8.

....

.... [1]

(f) What formatting has been done to column C, D and E?

....

.... [1]

(g) How could a new column called supplier be inserted between column A and B?

....

.... [2]

[13]

[Turn over

4 Milka set up a database showing statistics for some Regions in Namibia. Part of the Database is shown below.

Ref	Name of Region	Population	Area (km²)	Density
ERO	Erongo	175 900	65,539	2.68
HAR	Hardap	85 600	109,781	0.78
KAR	Karas	84 100	161,514	0.52
KHO	Khomas	400 200	36,964	10.83
KUN	Kunene	95 600	115,260	0.83
OSH	Oshikoto	192 500	38,685	4.98
ZAM	Zambezi	97 200	14,785	6.57

(a) Milka wants to decide on whether to use a flat file database or a relational database.

Define the term *flat file database.*

....

.... [1]

(b) (i) How many records are in this section of the database?

....

.... [1]

(ii) How many fields are in each record?

....

.... [1]

(c) The following search condition was entered. (Population < 90 000) OR (Area (km²) > 110 000)

Using Ref only, write down which records will be found.

....

....

.... [2]

(d) Write down the search condition to find out which region has an area less than 70 000 km² and where density is over 5.0.

....

....

.... [2]

(e) (i) What should be the key field in this database?

....

.... [1]

(ii) Give a reason for your choice.

....

.... [1]

(f) Milka found out that the Database is 40.8 MB big. She wants to share a copy of this database with workmates stationed in the various regions across the country.

What storage device could Milka use? Give a reason for your answer.

Storage device ....

Reason ....

.... [2]

[11]

[Turn over

5 Axeero runs a youth awareness organisation that uses a mobile phone based computer system. He uses firewalls and proxy-servers at his main office. Individuals across the country can report gender based violence occurrences across the country through this system. Users can also access various information through this system.

(a) Suggest and describe **two** ways that could be used to protect the data collected, held and processed by this system.

1..

Description:..

....

....

2..

Description..

....

.... [4]

(b) Explain how the following concepts can be used in the Axeero's organisation.

(i) Firewalls

....

....

.... [2]

(ii) Proxy servers

....

....

.... [2]

[8]

6 Tjeripo decides to use an Internet search engine to help locate a game park in Namibia.

(a) State what is meant by a *search engine*.

....

.... [1]

(b) (i) Besides a computer, list **two** other hardware devices required for Tjeripo to connect to the Internet.

1 ....

2 .... [2]

(ii) List **two** software required for Tjeripo to connect to the Internet.

1 ....

2 .... [2]

(c) The search engine found a list of hyperlinks of different websites of game parks in Namibia.

(i) Define the term *hyperlink*.

....

.... [1]

(ii) Give **one** advantage and **one** disadvantage of using a search engine to Tjeripo.

Advantage ....

....

Disadvantage ....

.... [2]

[8]

7 Many people now use e-mail for sending letters.

(a) State what is meant by the term *e-mail*.

....

.... [1]

(b) List **three** advantages of e-mail over normal mail.

1 ....

....

2 ....

....

3 ....

.... [3]

(c) Explain why a user need to have a password to access and send e-mails.

....

.... [1]

[5]

8 Helena is listening to music from a certain website. Although Helena is still connected to the Internet, the music pauses automatically for a while. She suspects that the pause was caused by buffering or spooling.

(a) Explain **one** advantage of

(i) buffering.

....

.... [1]

(ii) spooling.

....

.... [1]

(b) State whether it was buffering or spooling that caused the sudden pause of playing Helena's computer. Give a reason for your choice.

Answer ....

Reason ....

.... [2]

[4]

9 Work through the following flowchart and complete the trace table on page 18.

```
                    ┌──────────────┐
                    │    START     │
                    └──────┬───────┘
                           │
                    ┌──────┴───────┐
                    │    S = 0     │
                    └──────┬───────┘
                           │
                    ┌──────┴───────┐
                    │    C = 1     │
                    └──────┬───────┘
                           │
                    ┌──────┴───────┐
                    │   INPUT N    │
                    └──────┬───────┘
                           │
                    ┌──────┴───────┐
                    │  T = N/100   │
                    └──────┬───────┘
                           │
                      is T< 1 ?  ──Yes──►  is T > = 0.1 ?  ──Yes──►  S = S +1
                           │                      │
                          No                     No
                           │                      │
                    ┌──────┴───────┐
                    │  C = C + 1   │
                    └──────┬───────┘
                           │
          Yes ──────   is C< 10?
                           │
                          No
                           │
                    ┌──────┴───────┐
                    │   OUTPUT S   │
                    └──────┬───────┘
                           │
                    ┌──────┴───────┐
                    │    STOP      │
                    └──────────────┘
```

[Turn over
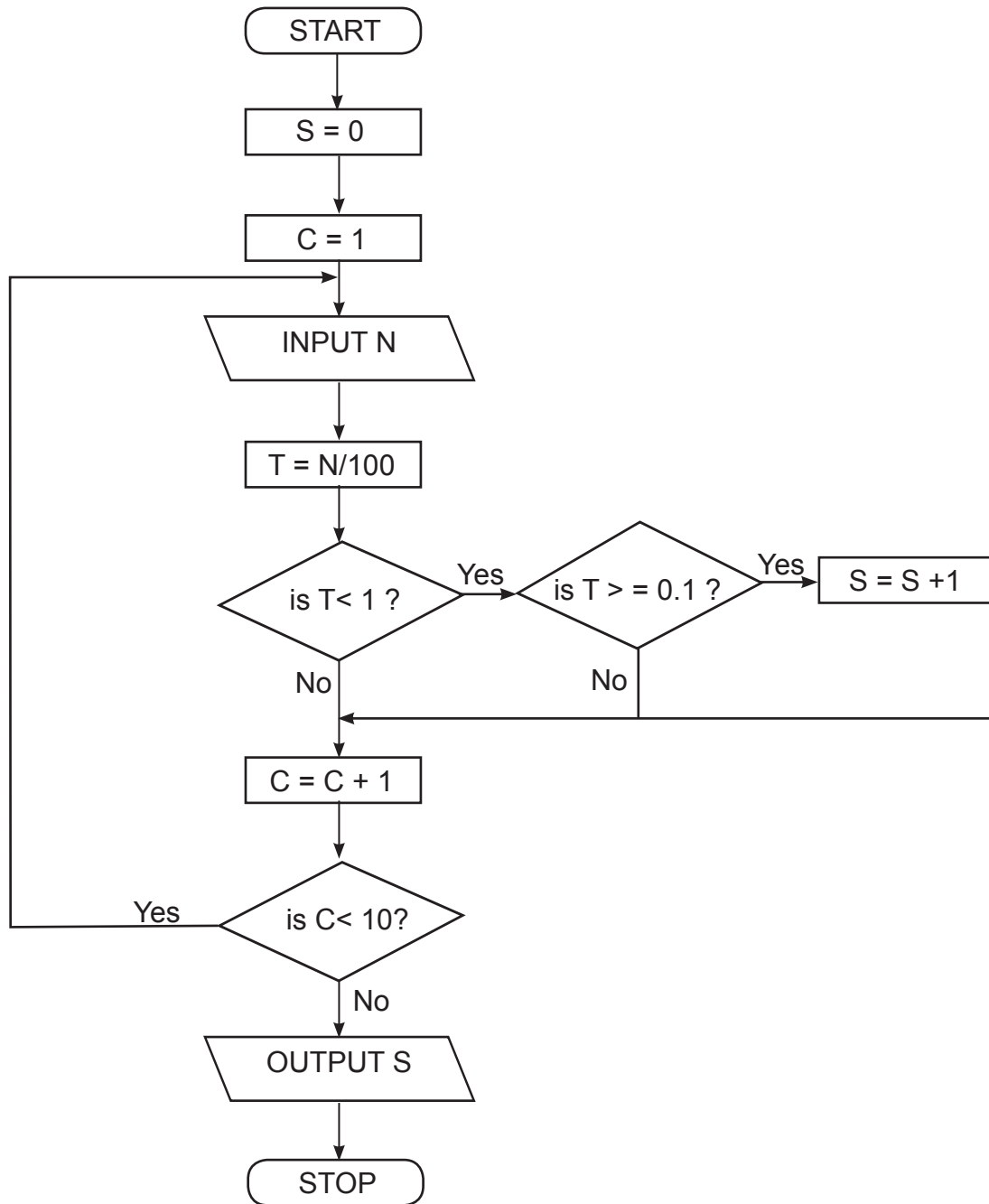
Complete trace table below for the flowchart on page 17 using the following test data:15, 8, 251, 35, 60, 3, 2, 1516, 19, 55.

S	C	N	T	Output

[10]

10 What will be the output of the following algorithm segments?

(a) Begin

    Mass ← 64
    Height ← 75
    BMI ← mass / (Height * height)
  Output BMI

End.

....

.... [2]

(b) Begin

    X ← 99
    Y ← 33
    Z ← X Div Y
    Output Z

End.

....

.... [2]

(c) Begin

    Count ← 0
    Product ← 2, Num ← 6
    while count < = 3 do
       Product ← Product * Num
       Count ← Count + 1
       Output Count
    End while
    Output Product

End.

....

.... [2]

(d) Begin

    M ← 6
    N ← 14, L ← 22
    if   M > N or L < N then
       Output M;N
    Else
       Output L
    End if.
     End.

....

.... [2]

(e) Begin

       Temp = 37

      For Count = −3 to 3 Do

            Temp ← Temp DIV 2

            Output Temp

      Count ← Count + 1
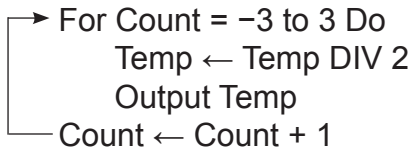
End.

....

.... [2]

[10]

11 A country has 3 mobile phone operators. Each mobile phone number has 10 digits. The first 4 digits identify the network operator:

    0222 NTN,   0333 CoolMobile,   0444 First Net

Write an algorithm, using Pseudocode or flowchart only, which:

- Reads 10 000, 10 digit mobile phone calls on each of the 3 network operators
- Display the number of calls made on each of the 3 network operators.
- Find out and display the number of invalid mobile phone numbers attempted during the same day.

....

....

....

....

....

....

....

....

....

....

....

....

....

.... **[10]**