

MARKING SCHEME
SECTION A

1. State the meaning of the term **computer software** [2]
 - **Set of programs/intangible part/non physical part**
2. State **three features** of fifth generation computers [3]
 - **Use of expert systems/mimic human being**
 - **Support natural language**
 - **Support distributed processing**
 - **Support artificial intelligence and voice recognition**
 - **Support parallel processing**
 - **Uses less power**
 - **Small in size**
 - **Generate less heat**
 - **Superior hardware/memory/ speed**
3. Differentiate between **home page** and **web page** as used in the Internet [2]

Home page is the first page that opens when a site is opened while a Web page is any page in a web site
4. State **three characteristics** of mainframe computers [3]
 - **They have bigger memory capacity**
 - **Have high processing power/less powerful than super computers/complex operating system**
 - **Supports multi processing**
 - **Supports large number of users at the same time**
 - **Runs several applications at the same time**
 - **Big in size/smaller than super computers/larger than micro and mini computers**
 - **Less expensive than super computers**
 - **Supports many peripheral devices**
5. The management of an organization intends to purchase a printer. State **three factors** that they should consider during the purchase. [3]
 - **Initial cost**
 - **Volume of work to be printed**
 - **Portability**
 - **Running costs**

- **Speed of printing**
 - **Type of work to be printed e.g. paper type, paper size etc**
 - **Type of printer e.g. colour, back to back capability etc**
6. Describe each of the following computer cables: [2]
 - I. **Parallel cable** [2]
 - **It is a communication cable with high speed of transmission**
 - **Transmits several bit at the same time**
 - **Suitable for short distance transmission/ suffers high attenuation**
 - NB. **Accept illustrations**
 - II. **Serial cable** [2]
 - **Communication cable which has low speed of transmission**
 - **Transmits one bit at a time**
 - **Used in long distance transmission**
 7. A computer technician has observed a lot of dust on computers in the computer laboratory. State **three precautions** that need to be put in place to avoid this. [3]
 - **Fit air conditioning system to allow free circulation of air.**
 - **Fit curtains/window filters to reduce entry of dust**
 - **Use dust covers**
 - **Use blower to reduce dust on computers**
 - **Avoid earthen floors/use carpets**
 - **Avoid entering the lab with shoes**
 8. Explain the term **proofreading** as used in word processing [2]

Process of checking the spelling and grammatical errors in a document
 9. State the function of each of the following computer keyboard keys when using a word processor. [1]
 - I. **End** [1]

Used for moving the cursor to the end of the line being typed or already typed
 - II. **Insert** [1]

Used for changing/toggling between insert mode or type mode and vice versa.
 - III. **Backspace** [1]

Used to delete characters
 10. Explain **two problems** associated with the computer hard disk [4]

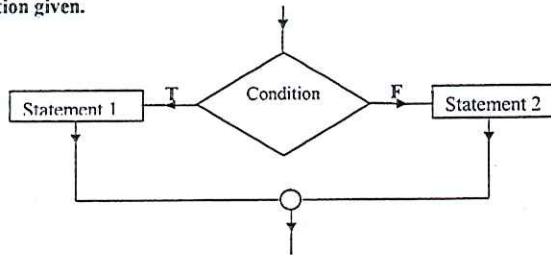
Accept any problem that can be blamed on the hard disk including hardware or software e.g. bad sectors, lack of portability, corrupted system registry, missing system files, corrupted system file, limited space, slow speed, crashing etc

 - **Excessive shock from dropping**
 - **Contact with strong magnetic fields**

ii) selection

[3]

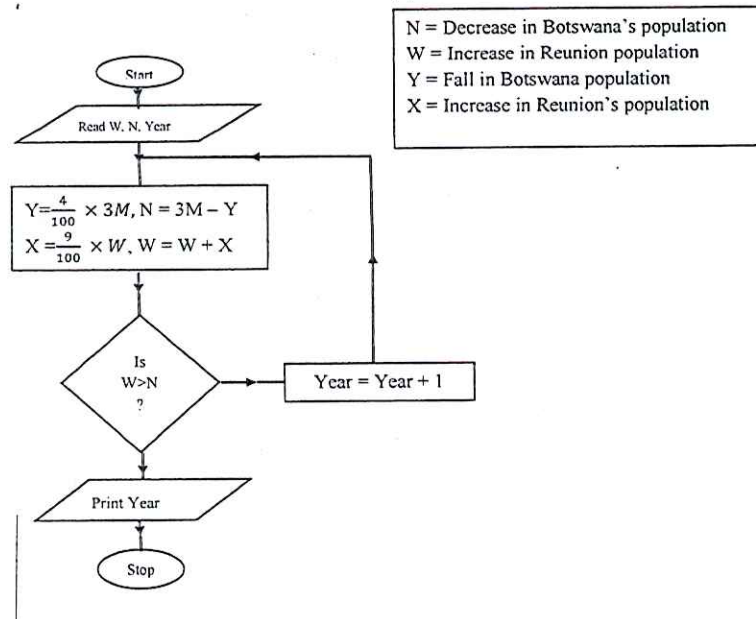
Flow of a program is determined by choice of one or two or more options based on a condition given.



c) Botswana has a population of 3,000,000 but this is falling by 4% each year. The island of Reunion has a population of 95,000 but this is increasing by 9% each year.

Draw a flowchart that predicts the year in which the population of Reunion will be greater than that of Botswana if the trend continues.

[7]



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17. a) Describe three arithmetic errors that may occur during computerized data processing. [6]

- Truncation error – results due to shortening or leaving out part of a number or a word
- Rounding off error – arises by approximating a number by replacing it with a number that has fewer significant digits or one with zeros for its ending digits
- Overflow error – occurs when the results of a computation are higher than the allocated memory space.
- Underflow error – occurs when the output is too small to be represented in the chosen format.

b) A programmer intends to create a user input interface screen for a system. State three factors that he should consider. [3]

- Type of technology e.g. OMR, Braille etc
- User friendliness
- Colour, fonts and layout/objects should be neatly placed
- Consistent layout of the system
- should prompt user clearly
- should capture the same number of items as indicated in the manual data capture form
- Appropriate size of form/fits screen.

c) With the aid of an example in each case describe the following types of maintenance

- i) Adaptive [2]
Type of maintenance that is done to make the system to adopt the changing technology e.g. changing the system due to a new operating system
- ii) Perfective [2]
Type of maintenance done to make the system better in its operation e.g. adding a new module in the system
- iii) Corrective [2]
Type of maintenance done to correct an error in the system. e.g. wrong results in arithmetic operation

18. a) Distinguish between a microwave transmission and radio transmission [4]

Both are wireless forms of transmission however Microwave is a point to point transmission while radio wave is a broadcast transmission

Or

Microwave uses high frequency/short wavelength transmission while radio wave uses low frequency/long wavelength transmission.

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b) Figure 1 shows a computer network topology. Use it to answer the questions that follow.

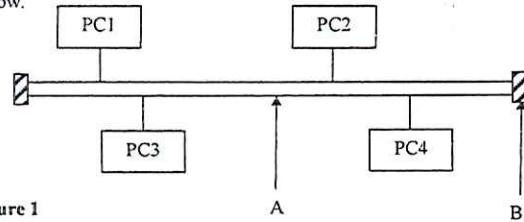


Figure 1

- i) Identify the type of topology [1]
Bus
- ii) State the function of each of the parts labeled A and B [4]
A. Bus cable - Transmits data
B. Terminator – absorbs/prevents signals from bouncing back
- c) A computer laboratory experiences power supply problems. Describe three power related problems that should be addressed. [6]

- **Blackout: unexpected discontinuation of electricity**
- **Power Sag: Sudden drop in voltage levels that last less than a second.**
- **Transient/Power Surge: High voltage flowing**
- **Brownout: Partial blackout where there's low voltage flow.**
- **Short Circuit: Live wires touching each other**
- **Loose Connection: Can cause tripping or total power failure**

19. a) A school has been advised to employ a database administrator. State three responsibilities of this personnel in the school. [3]
- **Designs and develops database applications**
 - **Performs database backups**
 - **Performs database recovery in case of system failure**
 - **Manages users e.g. adding users, managing user accounts**
 - **Updating/maintaining the database**
 - **Monitoring the database**
 - **Ensures security and integrity of the database**

- b) Explain two ways in which computers can be used in the transport industry. [4]
Guiding principle = Technology + Use, e.g.
Use of internet to perform online booking/reservations etc
Use of GPS to track vehicles, flights
Use of computerized speed governors to control vehicle speed

Use of database to manage human resource

Use of computers to manage/control traffic lights

c) Mary was advised to partition a hard disk for her computer. Explain two reasons that may have necessitated this. [4]

- **For security purposes in case one partition fails the second will be used**
- **A second partition can be used as a backup**
- **To install more than one operating system**
- **For ease of access of data**

- d) Explain a reason for conducting each of the following studies in system development. [2]
- i) **Schedule feasibility** [2]
To determine if the proposed system can be developed within the required time frame
- ii) **Technical feasibility** [2]
To determine if the system can be supported by the available technology/technocrats/experts

20. a) Explain three functions of an information system in an organization [6]

- **To process data into information**
- **To aid in Decision Making**
- **For sharing information/communication**
- **Improves the quality of production/performance within the organization**
- **Improves information access**

- b) Explain two benefits that a company would gain from using batch processing method for data processing. [4]

- **Increased output because processor is not interrupted**
- **Low cost of operation since tasks are processed as a group.**
- **Requires little supervision since the processing runs automatically**
- **Less labour required**

- c) i) Convert the number 11101.11_2 to its decimal equivalent. [3]

$$1 \times 2^4 + 1 \times 2^3 + 1 \times 2^2 + 0 + 1 \times 2^0$$

$$16 + 8 + 4 + 1$$

$$29$$

$$.11_2$$

$$1 \times 2^{-1} + 1 \times 2^{-2}$$

$$0.5 + 0.25$$

$$0.75$$

$$\text{Hence } 11101.11_2 = 29.75_{10}$$

- iii) Perform the following binary operation $11011_2 + 101_2$ [2]

$$11011$$

$$+ 101$$

$$100000.$$