451/1
COMPUTER STUDIES
PAPER 1

MARKING SCHEME
1.
  i.   Vacuum tubes /Thermionic valves
  ii.   Transistors
 iii.   Integrated circuits
 iv.   Large scale integrated and very large scale integrated circuit

        ½ x 4 mks

2.
  a) Instructions are executed in sequence from the beginning to the end
  b) A group of instructions are choosen for execution after a specified condition that returns true or false is satisfied.
  c) Allows a group of instructions to be executed repetively until a certain condition is satisfied

        3mks

3.   Cold booting refers to starting a computer from the main switch when it is initially off, while warm booting is restarting a computer when it is initially on without completely shutting it down

        2mks

4.
  a) The act of using a word processor to creste, edit, format and print documents   1mk

  b)(i) A feature that enables text to automatically flow to the next line when the cursor reaches the end of the current line   1mk
    (ii) An already set format for quickly creating most frequently used documents   1mk

5. a) Changing data being transmitted to a code only the sender and the recover can understand to prevent it from being tapped, listened to or copied by un authorized persons   1mk
  b) Tapping into communication channels to get information   1mk

6.
$$
\begin{array}{c|cc}
16 & 842 & 10 \rightarrow A \\
16 & 52 & 4 \\
16 & 3 & 3 \\
\end{array}
$$
award marks as follows
- Division 1mk
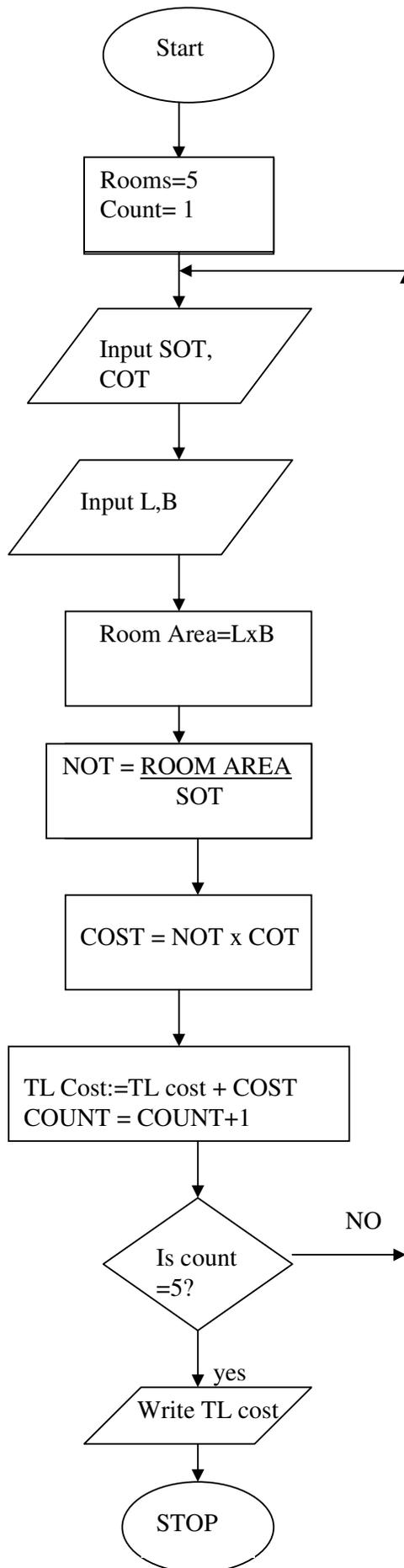- Correct answer 1mk

       $\Rightarrow 34\,A_{16}$

7. (i) Alphabet keys - 1mk
  (ii) Function keys - 1mk

8. (a) a language in which instructions are represented using binary codes easily recognized and interpreted by a computer   1mk
  (b) A problem oriented language in which instructions are presented using human understandable languages such as English   1mk

9. (i) This is loss of signal strength that takes place during data transmission
  (ii) The process of combining several data signals and sending them over the same transmission medium

        1mk

10. – If the warranty on offer was return to base
   - The price of a computer with a 1 year warranty could be higher than that of a six months warranty
    - If computer parts were not comprehensively covered

(any two - 2mks)

11.(a) = SUM IF (A1: A5,">60")
   - Correct fuction   1mk
   - Correct values in brackets   1mk
   (b) (i) Aprocess of rearranging scattered files and folders on a disk to speed up their access   1 ½ mks
     (ii) Refer to dividing a large physical disk into two or more logical drive   1 ½ mks
12. (a) Universal serial port (USB port)   1mk
   (b) – Provides high speed and quality data transmission
     - Supports a wide range of devices   2mks

13 (a) a process of sending and receiving data between two or more networked computers or communication devices   1mk
   (b) – Not affected by electromagnetic interference
     - Supports high band width
     - Has light weight and occupies less space
     - Transmits data at high speed   3mks

14. 48_{10} ⟶ 110000_2 _____ ½ mk
        12 ⟶ 1100_2 _____ ½ mk
            001100   -   Increase no of bits
            110011   -   Turn to 1's complement   ½ mk
            +1   -   Tirn to 2^{15} complement
            110100

        ⟹   110000
            110100 +
            1100100_2 ⟶   ½ mk

        Overflow

15. (a) Information gathering   1mk
    (b) (i) – Sincere responses are possible due to the confidentiality of the process
          - Respondents can fill questionnaires at their awn pace
          - Enables extensive equiry to be carried out   1mk
       (ii) – some respondents may not fill or return the questionaires
          -   Good questioners are difficult to prepare
          -   Erroneous responses are likely if the question is not understoud   1mk

16(a) (i) A data structure with contiguous memory locations holding data of the same type referenced by a single name
      (ii) This is the representation of program statements using syntax similar to a programming language called structured English
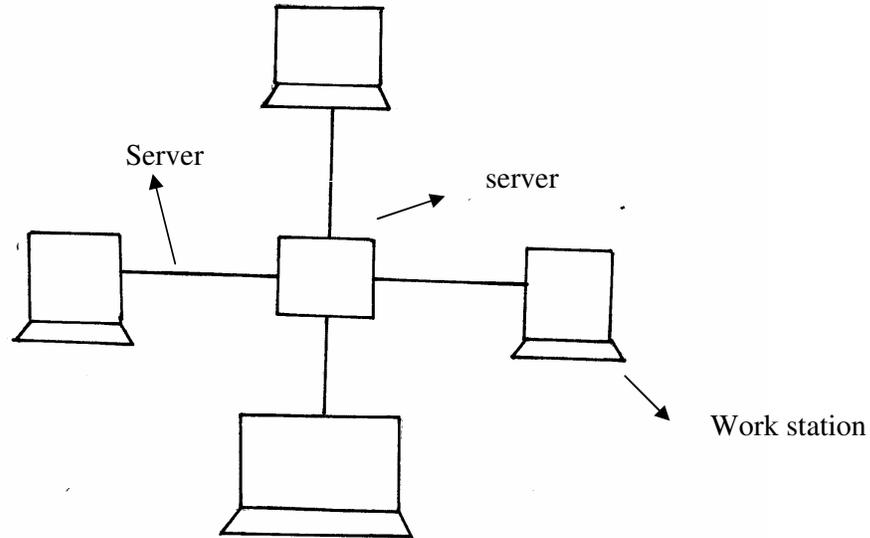   (iii) A sequence of steps which outline a procedure of solving a given problem
                                       1mk

```
                    ┌─────────┐
                    │  Start  │
                    └────┬────┘
                         │
                    ┌────▼─────┐
                    │ Rooms=5  │
                    │ Count= 1 │
                    └────┬─────┘
                         │
                    ╱────▼────╲
                    │Input SOT,│
                    │   COT    │
                    ╲─────────╱
                         │
                    ╱────▼────╲
                    │ Input L,B│
                    ╲─────────╱
                         │
                    ┌────▼─────┐
                    │Room Area=│
                    │   LxB    │
                    └────┬─────┘
                         │
                    ┌────▼──────┐
                    │NOT = ROOM │
                    │   AREA    │
                    │    SOT    │
                    └────┬──────┘
                         │
                    ┌────▼──────┐
                    │COST = NOT │
                    │   x COT   │
                    └────┬──────┘
                         │
                    ┌────▼────────┐
                    │TL Cost:=TL  │
                    │cost + COST  │
                    │COUNT=COUNT+1│
                    └────┬────────┘
                         │
                       ╱─▼─╲
                      ╱ Is  ╲  NO
                      ╲count=5?╱────►
                       ╲─┬─╱
                         │ yes
                    ╱────▼────╲
                    │Write TL  │
                    │  cost    │
                    ╲─────────╱
                         │
                    ┌────▼────┐
                    │  STOP   │
                    └─────────┘
```

Award marks as follows:

Start / stop	1mk
Initialization	1mk
Processor	4mks
Decision	1mk
Input	1mk
Total	8mks

(c) 5, 3, 1 4/5 , 1   4mks

17(a) This is a standard address used to find web pages bearing information on the internet
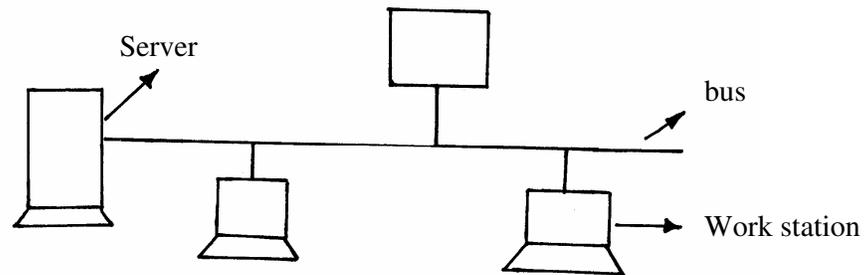
(b) (i) star

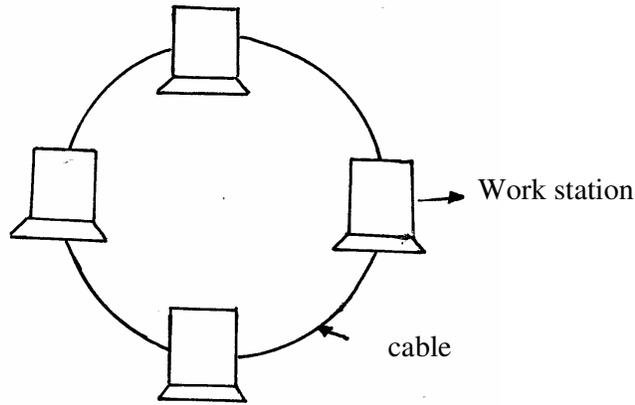Description: This is where all computers and devices are connected via point – to – point links to
a
centralized computer called a server

(ii) Bus topology

Description: All computers and devices are connected together by point – to – point links in a
closed loop

(iii)

Description: A series of computers and devices are connected together by point – to – point links in a closed loop

Award marks as follows
- Correct diagram   1mk
- Labeling   1mk
- Description   1mk

(c) (i) A logical file is viewed interms of its contents and processing activities that can be carried out on it while a physical file refers on how a file is arranged on a storage media   2mks

    (ii) (a) This is the main file within an organization that stores permanent data against which transaction are processed   1mk

      (b) A file that stores temporary incoming and outgoing data used to update the master file 1mk

      (c) A duplicate master file stored away from the computer system to reinstate the original file incase of damage   1mk

18.(a) (i) A field that uniquely identifies each record in database   1mk

      (ii) A thing of interest about which data is to be stored   1mk

      (iii) A collection of related field values representing a single entity   1mk

   (b) ASC11 → uses 7 bits to represent a character. 3bits for the zone and 4 bits for data

     BCD → uses 4 bits to represent a character

     EBCD → uses 6 bits to represent a character. 2 bits for the zone and 4 bits for data

     EBCDIC → uses 8 bits to represent a character. 4 bits for data and 4 bits for the zone.

   Award marks for any three 1mk for stating and 1mk for explanation

   (c) – Hacking where a person breaks codes and passwords to gain access to data and information without permission control: use of biotric features, audit trail

    - Tapping: using an intelligent program to avail information from the host computer or a network during transmission control: encrypting data

    - Piracy making illegal copies of copyrighted software information or data

Control: Enactment of laws, lowering software prices

        -1mk for description
        -1mk for control measure
        -Award marks for crimes such as fraud, sabotage, tresspass

19. (a) This where a person gets psychologically immersed in an artificial environment generated by a computer system   1mk

   (b) (i) Channels images and sound from the source to the eyes and ears of the wearer hence producing a 3D effect in the virtual world   2mks

      (ii) Made of conductor wires that sense body movement and relay data into the vitual reality System   2mks

    (c) (i) making computers perform tasks that would otherwise require intelligence if performance by human beings   1mk

      (ii) Knowledge base – stores knowledge inform of rules and facts concerning a certain subject of

Interest

Inference engine – Software which controls how knowledge is searched and accessed from the knowledge base

User interface – A feature that enables the user to interact with the system   3mks

(d) – Eye pattern
  - Finger prints   3mks
  - Voice

20 (a) A network of computer based processing procedures integrated with manual processes to produce information that can support decision making   1mk

(b) - When the interviewers are geographically dispersed in different places
   - When too much information is required about a small area of interest

(c) (i) A room in which computers and computer equipment are kept and used for learning and other Purposes   1mk

(ii) – Use of buglar proof doors
  -   A well set up and serviced electrical system
  -   Avoiding liquids in the lab
  -   Carefully handling of computing equipment   2mks

(d) (i) – Cost
   - Job opportunities
   - Duration of study
   - Desired level of qualification   3mks

II (a) – write in house application programs
  -   Customize commercial package to meet the needs of the organization
  -   Test, debug, install and maintain programs   2mks

(b) – Reviewing current systems with view of identifying faults that can necessitate development.of new systems
   - Work with programmers to ensure a smooth coding process   1x2mks
   - Facilitate training for users of the new system

(c) - Develops and tests websites
   - Maintains updates and modifies information on the web sites   1x2mks