

**451/1
COMPUTER STUDIES
MARKING SCHEME**

SECTION A

1. Fraud, Trespass, Hacking, Piracy, Sabotage, Theft of data (½ x2 marks) *TRZ*
2. a) Keyboard, Key- to- disk, Key- to- tape (1x1=1) *TRZ*
- b) Mouse, Light pen, Joy stick (1x1=1) *TRZ*
- c) Scanners, Wand, Mick, OCR, OMR (1x1=1) *TRZ*
3. - To increase through put
- To improve communication between the user and the computer
- To decrease down time by displaying error messages
- To decrease job set up time (1x2=2) *TRZ*
4. - License agreement
- Warranty
- User manual
- Reference guide
- Quick reference guide (1x3=3) *TRZ*
5. - The printer not being set to default
- A problem with the picking of papers
- Configuration of the printer to a wrong port (1x2=2) *TRZ*
6. In serial transmission, bits are send one at a time over a single transmission line from source to destination while in parallel, a group of bits are send at once over separate lines (1x2=2) *TRZ*
7. a) Source code refers to the program in its original language either assembly or high level while object code is the machine code equivalent (½ x2=1) *TRZ*
- b) Machine language represents data and instruction in binary codes while assembly language uses mnemonic codes to represent a computer operation (½ x2=1) *TRZ*
8. A- Secondary storage device
B- Control Unit
C- Input Device
D- Output device (½ mark each)
9. a) An error occurred during transmission as the total number of ones received are an even number (1mk) *TRZ*
- b) Transmission had no errors since the total number of ones form an odd number (1mk)
10. a) - An external storage device not part of the computers CPU
- A device that stores data permanently off the computer (1x1=1) *TRZ*
- b) - Prices have come down

- Larger storage capacities
- Affordable prices for DVD drives (1x3=3) *TRZ*

11. a) i) Word wrap is a feature which enables text to automatically flow to the next line if the end of the current one is reached (1mk) *TRZ*
- ii) Thesaurus is a feature used to find synonymms and antonymms(1mk) *TRZ*

b)

FORMULA IN C10	FORMULA IN F15	
=A5 * B5	=D10 *E10	1 mk *TRZ*
=A & 5	=D&5	1mk*TRZ*
=4 *B&6	=4 *E&6	1mk*TRZ*

12. - Design a new system
 - Teams up with programmers to ensure smooth coding
 - Guides users on how to use the new system
 - Carries out system review and maintenance
 (1x3=3*TRZ*)

13. a) Employees working from home through interlinked computers other than going to office (1mk) *TRZ*
- b) - Management may fear difficulties of controlling a work force that is not in office
 - It is difficult to ensure that the involved staff fully understands the goals of the organization and be loyal to it
 - Employees may feel isolated and miss the social working environment
 - It is difficult for employees to work in teams or even find help
 - Some teleworkers may find it difficult to separate home from work
 (1x3=3) *TRZ*

14. a) - Investigations and fact finding (1mk) *TRZ*
- b) **Advantages**
 - Information collected is reliable and accurate
 - It is a good method for intensive investigation
 - Questions can be rephrased instantly for clarification
 - Non- verbal communication like facial expressions can be used and observed
 (½ x 2=1) *TRZ*

Disadvantages

- Requires a lot of expenses and time
- The interviewee may be reluctant to answer some questions
- Interviews are difficult to prepare and organize (½ x 2=1) *TRZ*

15. a) - Corel draw, Adobe page maker, Ms publisher (½ x2=1) *TRZ*
- b) - To act as a power backup
 - Acts as a surge protector
 - Enables computer users to save their work and close down the computer correctly in the event of power break down (½ x2=1) *TRZ*

SECTION B

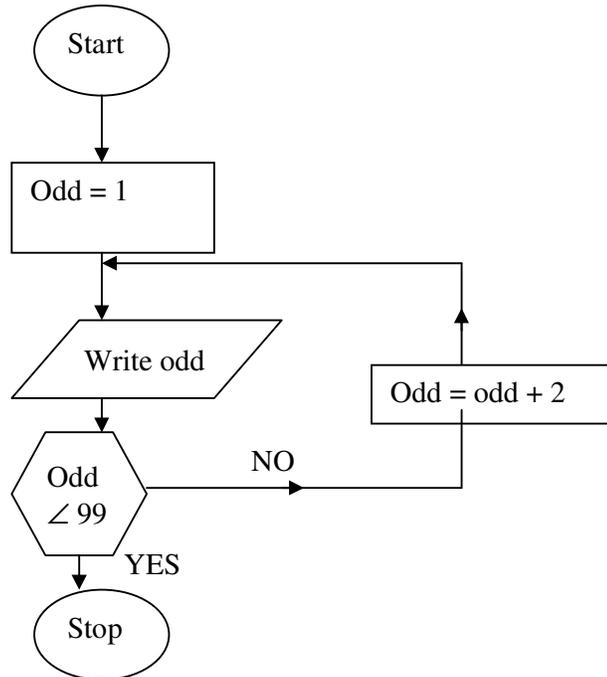
16. a) i) Start
 Odd=1
 Repeat
 Write odd
 Odd= Odd+2
 Until odd =99
 Stop

Marks award

- * Start/ stop – 1 mk
 Repeat/ until -1 mk
 correct statements -3 mks
 *Also accept use of other control statements
 such as while...DO

TRZ

ii)



1 mark for each correct symbol and procedure in the symbol (1x 6=6)

- b) - integer, Real, Char, String, Boolean

(1x 4=4) **TRZ**

17. a) i) An integration of both manual and computer based processes that produce information to support decision making (1mk) **TRZ**
 ii) A closed system is one that is isolated from its environment and therefore does not interact with it while an open system is one connected to and interacting with its environment (1x 2=2) **TRZ**

iii) **Stage I Preliminary survey/ study**

Stage during which a problem is recognized, defined and a feasibility study initiated

Stage II Investigation and fact finding

A comprehensive study is undertaken to establish facts which relate to the proposed system

Stage III Analysis

A stage during which detailed requirements for the new system are identified by the system analysts **TRZ**

Stage IV System Design

At this stage, the proposed system is designed using design tools such as flow charts **TRZ**

Stage V System Construction & Testing

Programs are coded and tested together with the other system components **TRZ**

Stage VI System implementation

This is the stage at which the new system is put to use **TRZ**

Stage VII Maintenance and review

During this stage, repairs, modifications and corrections are done to the implemented system to keep it functional **TRZ**

(For each stage, 1/2 mk for identification 1/2 for explanation)

- b) i) To convert digital signals to analog signals and vice versa during data transmission (1mk) **TRZ**
- ii) An ISDN line is capable of automatically accepting and converting digital signals to analog before transmission (1mk) **TRZ**
- iii) Voice, sound, pictures, text (1x3=3) **TRZ**
- 18. a) i) The act of making individual data accessible only to its owners and those permitted (1mk) **TRZ**
- ii) - Should be obtained and processed fairly and lawfully
- Personal data should be held for specified purposes
- Should not be used for any other reason other than the original purpose
- Personal data should be relevant and adequate
- Should not be kept longer than necessary (1x4=4) **TRZ**
- b) - Time when information is required
- Costs involved in implementing the processing method
- Nature of business
- Size of business (1/2 x4=2) **TRZ**
- c) i) A computer program which performs tasks that would otherwise require skills of a human expert if done by people (1mk) **TRZ**
- Advantages**
- The knowledge is always available
- It works faster
- Its decisions are based on logic and issues of emotions does not arise (1x 2=2) **TRZ**
- Disadvantages**
- It is flexible as it may not take into account exceptional circumstances
- Human experts using it may tend to be over reliant on it
- Expensive to buy, install and maintain (1x2=2) **TRZ**
- d) i) A program that enables one to search for particular information on the internet (1mk)
- ii) Specifies standard addresses for web pages or other devices on the web or internet

- (1mk) *TRZ*
- iii) Specifies the name of the file server on which the web resource is held (1mk) *TRZ*
19. a) - Relevant to its purposes
- From reliable source
 - Correct, accurate and complete
 - Communicated to the right person and at the correct time (1x2=2) *TRZ*
- b) i) A program that manages the storage, manipulation and access data from the data base (1mk) *TRZ*
- ii) **Network:** Data is represented as a collection of records and relationships joined by links
Hierarchical: Data and relationships among data are represented by linked records which are organized as a collection of trees
Relational: Data is held as a collection of tables
Files: Data items are stored sequentially in one large file (1x3=3) *TRZ*
- (*Stating* ½ mk
(*Explaining* ½ mk
- c) i) A file that holds permanent data in an organization against which transactions are processed (2mks) *TRZ*
- ii) A file created from existing master files to store duplicate copies that can be used to restore the original file in the event of loss or damage (2mks) *TRZ*
- iii) A file that holds temporary incoming and outgoing data in an organization for a given period of time (2mks) *TRZ*
- d) i) Records are written onto the disk in the order in which they come with no regard for sequence (1mk) *TRZ*
- ii) Records are arranged on disk in sequence with an index added for easier access (1mk) *TRZ*
- iii) Records are arranged on disk randomly with no obvious relationships among them (1mk) *TRZ*
20. a) i) Displays contents of the file class data on the screen
ii) Deletes all files with Doc extension from drive C
ii) Copies all files from drive A irrespective of their file extensions to a directory in drive C called PRACTICE
iii) Displays all files in drive D whose names begin with M and have extension EXE (½ x4=2) *TRZ*
- b) i) Choose any two from the following
Star topology: Individual work stations are connected by point-to-point link to a central computer (1mk) *TRZ*
- Advantages**
- If a cable for one computer fails, it does not affect the rest
 - Performance is consistent even if the network is being heavily used
 - Easier to add new work stations
 - Passing of messages within the network is more
 - Secure (1x2=2) *TRZ*

Bus topology: All work stations on the network share the same transmission medium called a bus (1mk) *TRZ*

Advantages

- Relatively cheaper and easier to install as it requires the least amount of cable
- Easier to add new work stations without disrupting the network
- Failure of one computer does not affect the others on the network (1x2=2mks) *TRZ*

Ring topology: A series of computers are connected together by point-to-point links in a closed loop (1mk) *TRZ*

Advantages

- There is no dependence on a central server
- Transmission of messages is simple as they move in one direction
- Very high transmission rates are possible
- Signal degradation is minimal due to the use of repeaters (1x2=2) *TRZ*

- ii) Conversion of 39_{10} - 100111_2 (1mk) *TRZ*
- Conversion of 0.75 - 0.11 (2mks) *TRZ*
- Correct answer 100111.11_2 (1mk) *TRZ*

c) **Compiler:** Translates a program written in a high level language to its machine code equivalent

Assembler: Translates a program written in assembly language to its equivalent machine code

Interpreter: Translates and executes high level language statements immediately they are encountered (1x3=3) *TRZ*