Answers

COMPUTER STUDIES

1. **Clearly define a computer**

-        A computer is an electronic device that operates (works) under the control of programs stored in its own memory unit

-        An electronic device that accepts data, as input and transforms it under the influence of a set of special instructions called programs, to produce the desired output (referred to as information)

2. **Give one reason why a computer is referred to as an electronic device**

-        It uses electrical signals to process data

-        It is made up of electronic components and uses electric energy to operate

3. **Explain the following terms as used in computer science**

(i)   Data

A collection of raw facts, figures or instructions that do not have much meaning to the user

(ii)   Program

A computer program is a set of related instructions which specify how data is to be processed

A set of instructions used to guide a computer through a process

(iii)   Data processing

It is the process of collecting all terms of data together & converting them into information

(iv)   Information

Data which has been refined summarized & manipulated in the way you want it, or into a more meaningful form for decision- making

4. Identify the following computer components
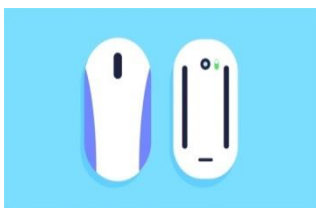
| Mouse | Keyboard | Monitor |

5. **Identify the following components contained in a computer case**

6. **What are the functions of the motherboard**

a) The motherboard acts as the central backbone of a computer on which other modular parts are installed such as the CPU, RAM and hard disks.

b) The motherboard also acts as the platform on which various expansion slots are available to install other devices / interfaces.

c) The motherboard is also responsible to distribute power to the various components of the computer.

d) They are also used in the coordination of the various devices in the computer and maintain an interface among them.

7. Name three buses of computer system

a) Address bus

b) Data bus

c) Control bus

3. State any three functions of a computer

    a. Accepting data

    b. Processing the data

    c. Producing information

4. Explain the following input/ output terms as used in computer systems. Give an example for each

(a) **Read -** To transfer data from an input device to the computer, e.g. the computer reads data from a disk, a keyboard, etc

- To move or copy data from backing storage to the main Storage

(b) **Write -** To transfer information from the computer to an output Device e.g. the computer writes output on a printer or onto a disk.

- To move or copy data from the main storage to a backing storage

5. State four different parts that make up a computer (2 mks)

    a. System unit

    b. Monitor

    c. Keyboard

    d. Mouse

    e. Printer

    f. Modem

    g. Scanner

    h. Speakers

    i. Graph plotters

6. (a) Explain the term system Unit

This is the casing that houses the internal components of the computer such as the CPU and storage devices

(b) List four devices located under the cover of the system unit

    a. Central processing Unit (CPU)

    b. Motherboard

    c. Power supply unit

    d. Main memory

    e. Hard disk

    f. Disk drives

    g. Battery

    h. Buses

    i. Input/ output ports

j. Video card

k. Expansion slots

(c)   Give two differences between tower – style and desktop system units

a. Tower style system unit is designed to stand alone or to be placed on the floor, desktop units lie on the desk with the monitor placed on top

b. Tower style units have more space for expansion than the typical desktop units

7.   Computers have evolved through a number of generations. List any 4 characteristics of the first generation of computers.

a. Large in physical size

b. Relied on thermionic valves (vacuum tubes) to process and store data

c. Consumed a lot of power

d. Produced a lot of heat

e. The computers constantly broke down due to the excessive heat generated; hence were short- lived, and were not very reliable

f. Their internal memory capacity/ size was low

g. Processing speed was very slow

h. Very costly

i. Used magnetic drum memory

8.   Briefly explain the classification of computer according to historical development (generations)

i. First generation computers

   a. Used vacuum tubes in their memory

   b. Large in physical size

   c. consumed a lot of power

   d. Produced a lot of heat

   e. The computers constantly broke down due to the excessive heat generated; hence were short- lived and were not very reliable

   f. Their internal memory capacity/ size was low

   g. Slow in processing data

   h. Very costly

   i. Used magnetic drum memories

   j. Cards were sued to enter data into the computers

ii. Second generation computers

   a. Used transistors in their memory

   b. They consumed less power & produced less heat than the first generation computers

   c. They were relatively faster than the 1st generation computers

   d. Used magnetic core memories

   e. Were less costly than first generation computers

   f. RAM memory capacity was 32 KB

iii. Third Generation computers

a. Used integrated circuits in their memory

b. They were faster than second generation computers

c. RAM memory capacity was 2 GB

d. Slightly smaller in size than 1st & 2nd generation computers

e. They used a wide range of peripheral devices

f. Could support remote communication facilities/ more than one user at the same time

g. Magnetic disks were introduced for storage purposes

iv. Fourth generation computers

a) Used large scale integrated (LSI) circuits & very large scale integrated (VLSl) circuits in their memory

b) They were small & very fast

c) Had storage (memory) capacity

d) Magnetic disks, bubble memories & optical disks were used for storage

e) The first operating system was introduced

v. Fifth generation computers

a. Are the modern computers

b. Are designed/ constructed using parallel architectures, 3 –D circuit design & superconducting materials

c. Are very powerful, with very high processing speeds

d. The computers can perform multiprocessing

e. Have virtually unlimited (very high) memory sizes

f. Can support complex programs

g. Use advanced hard disks and optical disks for storage, e.g. DVDs

h. Use of zip disks

i. Use of multi user operating systems & advanced application programs

9.   State four factors used to classify computers

    a. Physical size & processing power

    b. Power

    c. Functionality (mode/ method of operation)

    d. Type of processor (CPU)

10.   State the differences between desktop computers and laptop computers

a. Desktop is designed to be used when placed on a desk in an office environment.

b. A laptop can be used comfortably when placed on the User's lap

c. A laptop is small & portable; desktop computers are not portable

11.   (a)   Explain the emerging trends in microcomputer technology in relation to size

-    PCs are becoming small and portable, e.g. personal Digital Assistant (PDA).

(b) Give two reasons why smaller computers like Laptops tend to be more expensive than Desktop computers

    a. The technology of producing smaller devices is expensive

    b. They are convenient because they are portable

    c. They have advanced power management capabilities (they consume less power since a laptop can operate on rechargeable batteries

12. Which category of computers would you place an N- series Nokia phone

- Microcomputer/ palmtop

13. Give three reasons why a mobile phone is regarded to be a computer

    a. It is electronic * uses electric energy to operate

    b. It has a display unit (screen)

    c. It has a keypad

    d. It has a memory for storage

    e. It is programmable

14. (a) Mention three Analogue devices

    a. Computer used to control a flight Simulator for training pilots

    b. Bathroom scale

    c. Thermometer

    d. Speedometer

    e. Post- office scale

    f. A radio with a knob that slides in a slot to increase volume

(b) Give three example of special – purpose computers

    a. Robots

    b. Mobile phones used for communication only

    c. Calculators that carry out calculations only

    d. Computers used in digital watches & in petrol pumps

    e. Computers used in petrol pumps

    f. Computers used in washing machines

    g. An automatic pilot

h. A word processor

15. State a specific example where each of the following types of computers can be used

(a) Supercomputer

    i.   Weather forecasting

    ii.   Petroleum research

    iii.   Defense and weapon analysis

    iv.   Aerodynamic design and simulation

(b) Mainframe computer   (1 mk)

    i.   Banks for preparing bills, payrolls, etc

    ii.   Hospitals

    iii.   Airports (i.e., in Airline reservation systems for booking & storing flight information)

    iv.   Communication networks as servers

(c) Minicomputer   (1 mk)

    i.   Scientific laboratories & research institutions

    ii.   Engineering plants for controlling chemical or mechanical processes

    iii.   Space industry

    iv.   Insurance companies & banks for accounting purposes

    v.   Communication centers as servers

(d)   Microcomputer / personal computer   (1 mk)

     i.   Training & Learning institutions, e.g. schools

     ii.   Communication centers as terminals

     iii.   Small business enterprises e.g. shops, small offices and homes

16.   (a) Define a microcomputer   (1 mk)

\-   A computer who's CPU (processor) has been implemented with a microprocessor

(b) Differentiate between a microcomputer and a personal computer   (2 mks)

     i.   A microcomputer is larger in physical size than a PC

     ii.   A microcomputer is more powerful than a PC

     iii.   A PC was designed to be used by one person only

(c) List three factors to be considered when purchasing a microcomputer   (3 mks)

     i.   Type of processor

     ii.   Processing speed

     iii.   Amount of main memory (RAM)

     iv.   Storage capacity of the hard disk

     v.   Cost of the computer

     vi.   Speed of output devices

     vii.   Number of users who can access the computers at the same time

17.   Explain four reasons which make microcomputers suitable for personal computing work

    a. Reduced cost, i.e. Are cheaper than the minicomputers & mainframe computers

    b. Have high processing speed

    c. Are small in size (occupy less office space)

    d. Are more energy efficient (i.e. consume less power)

    e. Are more reliable in doing various functions than the early mainframe computers

    f. Are versatile (i.e. can be used for many different tasks)

18.   (a) Identify and explain five areas where computers are used to process data (10 mks)

Supermarkets

a. For stock control i.e. records of what is in store, what has been sold, and what is out of stock

b. For calculating customer's change

c. For production of receipts

d. It can be used as a barcode reader

Banks

-      Manage financial transactions through the use of special cash dispensing machines called ATMs used for cash deposit & withdrawal services

    a. Processing of cheques

    b. For preparation of payrolls

    c. Better record keeping & processing of documents

d. Provide electronic money transfer facilities