**JUNIOR SCHOOL**

 **2024 Answers**

**COMPUTER STUDIES**

##### **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)

##### **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

##### **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

##### Identify the following computer components

##### showing a mousekeyboardshowing a computer monitor

Mouse

Keyboard

Monitor

##### **Identify the following components contained in a computer case**

##### Inside the Case | Absolute Beginners Guide to Upgrading and Fixing Your PC

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##### **What are the functions of the motherboard**

##### 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.

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

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

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

##### Name three buses of computer system

##### Address bus

##### Data bus

##### Control bus

##### 3. State any three functions of a computer

##### Accepting data

##### Processing the data

##### 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)

##### System unit

##### Monitor

##### Keyboard

##### Mouse

##### Printer

##### Modem

##### Scanner

##### Speakers

##### 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

##### Central processing Unit (CPU)

##### Motherboard

##### Power supply unit

##### Main memory

##### Hard disk

##### Disk drives

##### Battery

##### Buses

##### Input/ output ports

##### Video card

##### Expansion slots

#####

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

##### 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

##### 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.

##### Large in physical size

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

##### Consumed a lot of power

##### Produced a lot of heat

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

##### Their internal memory capacity/ size was low

##### Processing speed was very slow

##### Very costly

##### Used magnetic drum memory

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

##### **First generation computers**

#####

##### Used vacuum tubes in their memory

##### Large in physical size

##### consumed a lot of power

##### Produced a lot of heat

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

##### Their internal memory capacity/ size was low

##### Slow in processing data

##### Very costly

##### Used magnetic drum memories

##### Cards were sued to enter data into the computers

##### **Second generation computers**

##### Used transistors in their memory

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

##### They were relatively faster than the 1st generation computers

##### Used magnetic core memories

##### Were less costly than first generation computers

##### RAM memory capacity was 32 KB

##### **Third Generation computers**

##### Used integrated circuits in their memory

##### They were faster than second generation computers

##### RAM memory capacity was 2 GB

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

##### They used a wide range of peripheral devices

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

##### Magnetic disks were introduced for storage purposes

##### **Fourth generation computers**

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

##### They were small & very fast

##### Had storage (memory) capacity

##### Magnetic disks, bubble memories & optical disks were used for storage

##### The first operating system was introduced

##### **Fifth generation computers**

##### Are the modern computers

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

##### Are very powerful, with very high processing speeds

##### The computers can perform multiprocessing

##### Have virtually unlimited ( very high) memory sizes

##### Can support complex programs

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

##### Use of zip disks

##### Use of multi user operating systems & advanced application programs

##### 9. State four factors used to classify computers

##### Physical size & processing power

##### Power

##### Functionality (mode/ method of operation)

##### Type of processor (CPU)

##### 10. State the differences between desktop computers and laptop computers

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

##### A laptop can be used comfortably when placed on the User’s lap

##### 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

##### The technology of producing smaller devices is expensive

##### They are convenient because they are portable

##### 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

##### It is electronic \* uses electric energy to operate

##### It has a display unit (screen)

##### It has a keypad

##### It has a memory for storage

##### It is programmable

##### 14. (a) Mention three Analogue devices

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

##### Bathroom scale

##### Thermometer

##### Speedometer

##### Post- office scale

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

##### (b) Give three example of special – purpose computers

##### Robots

##### Mobile phones used for communication only

##### Calculators that carry out calculations only

##### Computers used in digital watches & in petrol pumps

##### Computers used in petrol pumps

##### Computers used in washing machines

##### An automatic pilot

##### A word processor

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

##### (a) Supercomputer

##### Weather forecasting

##### Petroleum research

##### Defense and weapon analysis

##### Aerodynamic design and simulation

##### (b) Mainframe computer ( 1 mk)

##### Banks for preparing bills, payrolls, etc

##### Hospitals

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

##### Communication networks as servers

##### (c) Minicomputer (1 mk)

##### Scientific laboratories & research institutions

##### Engineering plants for controlling chemical or mechanical processes

##### Space industry

##### Insurance companies & banks for accounting purposes

##### Communication centers as servers

##### (d) Microcomputer / personal computer ( 1 mk)

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

##### Communication centers as terminals

##### 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)

##### A microcomputer is larger in physical size than a PC

##### A microcomputer is more powerful than a PC

##### A PC was designed to be used by one person only

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

##### Type of processor

##### Processing speed

##### Amount of main memory (RAM)

##### Storage capacity of the hard disk

##### Cost of the computer

##### Speed of output devices

##### Number of users who can access the computers at the same time

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

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

##### Have high processing speed

##### Are small in size (occupy less office space)

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

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

##### 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

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

##### For calculating customer’s change

##### For production of receipts

##### 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

##### Processing of cheques

##### For preparation of payrolls

##### Better record keeping & processing of documents

##### Provide electronic money transfer facilities