ZAHID NOTES • BALOCHISTAN BOARD (BISE QUETTA)

9th Class Computer Science Notes Balochistan Board Full Book Notes

Complete chapter-wise study notes, key terms and original practice questions for Class 9 Computer Science, following the Balochistan Textbook Board book.

About these notes

These notes follow the chapters of the Balochistan Textbook Board book *Computer Science, Grade 9* (Single National Curriculum 2022-23, Balochistan Textbook Board, Quetta):

1. Computer Systems • 2. Computer Software • 3. Data Communication & Networks • 4. Computational Thinking & Algorithms • 5. Web Designing • 6. Data & Analysis • 7. Applications of Computer Science • 8. Impacts of Computing • 9. Entrepreneurship in Digital Age.

Each chapter contains study notes, key terms, and original practice questions (multiple-choice, short and long questions) written for these notes, with an MCQ answer key at the end of the book.

About the Balochistan paper: The BBISE Quetta Class 9 Computer Science theory paper is 60 marks in 2 hours 40 minutes (see page 2 for the full pattern). The practical side carries 15 marks. The pattern figures in this book are taken from the board's own model paper document — see page 2.

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Chapter 1	Computer Systems
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—	MCQ Answer Key — All Chapters

How to use this book: read one chapter's notes, learn its key terms, answer its short and long questions in your own words, then try its 10 MCQs. Use the answer key at the end only to check your work.

Paper Pattern — Balochistan (BISE Quetta), Class 9 Computer Science

Part	Marks	What it contains
Theory — Part A (Q1)	12	Multiple-choice questions (12 × 1)
Theory — Part B (Q2)	30	Short questions — attempt any 10 (10 × 3)
Theory — Part C (Q3–Q5)	18	Long questions — 3 questions, each with an OR choice (3 × 6)
Theory total	**60**	**Time: 2 hours 40 minutes**
Practical Based Assessment	8	6 marks questions + 2 marks favourite practical
Project Based Assessment	7	Project / model with explanation, verified by the school
Practical total	**15**	**50% practical + 50% project**
Subject total	**75**	**Theory 60 + Practical 15**

Source of this pattern: the official BBISE Quetta SSC-I (Class 9) Computer Science model paper document on bbise.edu.pk (theory paper: 60 marks, 2 hours 40 minutes, Parts A–C as above; Annex-2: Practical Based Assessment 8 marks + Project Based Assessment 7 marks). The 60 + 15 = 75 total also matches the board's revised Scheme of Studies for SSC-I 2026 onwards (Notification No. BBISE/DD(R)/Misc:/164-QB/2026, dated 30 June 2026), as reproduced in a report of that notification. Two small cautions: the model paper prints "12 × 1 = 12" for Part A but lists 14 MCQ items, so the printed total of 60 is used here; and a board addendum dated 28 September 2026 excludes Chapters 8 and 9 from one annual examination under a one-time syllabus reduction — the full book is still covered in these notes, because the reduction is for that examination only and the chapters remain part of the book.

Chapter 1: Computer Systems

Study Notes

A system is a collection of interconnected parts that work together to achieve a purpose. Every system takes input, processes it in some way, and gives output.

Natural systems occur in nature without human making: an ecosystem, the solar system, the water cycle and weather patterns are examples. Artificial systems are made by people for a purpose: a computer system, a transport network, a hospital system and a communication network are examples.

A computer system is a set of integrated devices that input, output, process and store data and information. Its two main parts are hardware (the physical parts) and software (the programs and instructions).

The history of computers is usually divided into five generations. First generation machines used vacuum tubes and were huge, slow and expensive. Second generation machines used transistors and were smaller and more reliable. Third generation machines used integrated circuits. Fourth generation machines use microprocessors — the computers we use today. Fifth generation machines are built around artificial intelligence, robotics and expert systems.

The central processing unit (CPU) is the brain of the computer. It has the arithmetic logic unit (ALU), which does arithmetic and logical operations; the control unit (CU), which directs the flow of data and instructions; and registers, small fast storage places inside the CPU that hold data being worked on.

Chapter 1: Computer Systems (continued)

The Von Neumann architecture is the design most computers follow: a CPU, memory, input and output devices, and a single shared bus that carries data and instructions between them. Programs and data are both stored in memory, so a program can be treated as data.

Memory is organised in a hierarchy. Cache memory is very fast and small and sits close to the CPU. Primary memory (RAM) is fast, holds data while the computer is working, and is volatile — it loses its contents when the power is off. Secondary memory (hard disk, SSD, USB drive) is slower but large and non-volatile, so it keeps data permanently. ROM is non-volatile memory that holds the start-up instructions.

Data inside a computer is stored in binary: a bit is a single 0 or 1, a byte is 8 bits. Decimal (base 10), binary (base 2) and hexadecimal (base 16) are the number systems used to represent data. One byte can store one character of text.

Necessary components are the parts a computer cannot work without: CPU, memory, motherboard, power supply and input/output devices. Auxiliary components add convenience or extra ability, such as a printer, scanner or speakers, but the computer can run without them.

Hardware engineering is about designing and building the physical parts of a computer. Software engineering is about designing, writing and maintaining programs. Both are needed for a working computer system.

Key Terms

- System — interconnected parts working together for a purpose.
- Natural system — a system that occurs in nature, e.g. an ecosystem.
- Artificial system — a system made by people, e.g. a computer system.
- CPU — the central processing unit; the brain of the computer.
- ALU — arithmetic logic unit; does calculations and comparisons.
- CU — control unit; directs data and instructions inside the CPU.
- Register — small, very fast storage inside the CPU.
- Cache memory — small, fast memory close to the CPU.
- RAM — primary memory; volatile, holds data while working.
- ROM — read-only memory; holds start-up instructions.
- Von Neumann architecture — CPU, memory and I/O joined by a bus.
- Bit / Byte — a bit is one 0 or 1; a byte is 8 bits.

Chapter 1: Practice Questions — Short

Short Questions (with answers)

Q1. What is a system? Give one example of a natural system and one of an artificial system.

Answer: A system is a collection of interconnected parts working together for a purpose. Example: natural — the solar system; artificial — a computer system.

Q2. Name the three main parts of a CPU and state the job of each.

Answer: The ALU does arithmetic and logical operations; the control unit directs the flow of data and instructions; registers hold data being processed.

Q3. What is the difference between RAM and ROM?

Answer: RAM is volatile primary memory that holds data while the computer works and loses it when power is off. ROM is non-volatile and holds the start-up instructions.

Q4. What is cache memory and why is it used?

Answer: Cache is small, very fast memory close to the CPU. It stores data the CPU needs often, so the CPU does not have to wait for slower main memory.

Q5. What is the Von Neumann architecture?

Answer: It is the design in which a CPU, memory and input/output devices are joined by a bus, and programs and data are both stored in the same memory.

Chapter 1: Practice Questions — Long

Long Questions (with answers)

Q1. Describe the five generations of computers, giving the main technology of each generation.

Answer: First generation used vacuum tubes and were huge and slow. Second generation used transistors, which were smaller and more reliable. Third generation used integrated circuits, giving more speed and storage. Fourth generation used microprocessors, the basis of modern personal computers. Fifth generation is built around artificial intelligence, robotics and expert systems, aiming at intelligent machines.

Q2. Explain the memory hierarchy of a computer system, comparing cache, primary and secondary memory by speed, size and volatility.

Answer: Cache is the fastest and smallest and sits nearest the CPU. Primary memory (RAM) is fast and larger than cache but volatile, losing its contents without power. Secondary memory (hard disk, SSD) is the slowest of the three but the largest and non-volatile, so it stores data permanently. Data moves down the hierarchy as it is used less often.

Chapter 1: Multiple-Choice Questions

Multiple-Choice Questions

Q1. A collection of parts working together for a purpose is called a

(A) Program (B) System (C) Network (D) File

Q2. Which of these is a natural system?

(A) A computer network (B) The solar system (C) A hospital system (D) A printer

Q3. The brain of the computer is the

(A) Hard disk (B) Monitor (C) CPU (D) Keyboard

Q4. The ALU is responsible for

(A) Directing data flow (B) Arithmetic and logical operations (C) Storing files permanently (D) Printing output

Q5. Which memory loses its contents when the power is switched off?

(A) ROM (B) Hard disk (C) RAM (D) USB drive

Q6. One byte is equal to

(A) 4 bits (B) 8 bits (C) 16 bits (D) 1024 bits

Q7. The first generation of computers used

(A) Transistors (B) Microprocessors (C) Vacuum tubes (D) Integrated circuits

Q8. In the Von Neumann architecture, programs and data are stored in

(A) The CPU only (B) The same memory (C) The printer (D) Separate computers

Q9. Which of these is an auxiliary component of a computer?

(A) CPU (B) Motherboard (C) Printer (D) RAM

Q10. The control unit of the CPU

(A) Prints documents (B) Directs the flow of data and instructions (C) Stores files (D) Connects to the internet

Chapter 2: Computer Software

Study Notes

Software is the set of programs and instructions that tell the hardware what to do. Without software a computer is only a collection of electronic parts.

System software manages the computer itself. It includes the operating system, utility programs and device drivers. Application software is written to do a particular job for the user, such as word processing, drawing, browsing the web or playing media.

An operating system (OS) is the most important system software. It starts the computer, manages the processor, memory, files and devices, and provides the interface between the user and the hardware. Common examples are Windows, Linux, macOS and Android.

The main operations of an operating system are: process management (running and switching between programs), memory management (giving each program the memory it needs), file management (organising files and folders on storage), device management (controlling printers, disks and other devices) and providing a user interface.

Utility software helps to keep the computer working well and safely: antivirus programs, disk cleaners, backup tools and file compression tools are examples. A device driver is a small program that lets the operating system talk to a particular piece of hardware, such as a printer or graphics card.

Chapter 2: Computer Software (continued)

Operating systems can be classified by how many users and tasks they handle. A single-user operating system serves one user at a time; a multi-user operating system serves many users at once. A single-tasking system runs one program at a time, while a multitasking system runs several programs together and switches between them quickly.

Other types include real-time operating systems, used where a response must come within a fixed short time (for example in a washing machine or a car engine controller), and distributed operating systems, which spread work across several connected computers.

Application software is of two kinds. General-purpose software is made for many users and many jobs — word processors, spreadsheets, presentation software and web browsers. Customised (special-purpose) software is written for one organisation or one job, such as a school's fee record system or a hospital's patient record system.

Files are organised in folders (directories) on storage. A file has a name and an extension that shows its type, such as .docx for a document, .jpg for a picture and .mp3 for sound. The operating system keeps a record of where each file is stored so it can be found again.

When choosing software, a user should check that it runs on their operating system, that it does the job needed, that it is from a trusted source, and that it is properly licensed. Using unlicensed or pirated software is against the law and can carry viruses.

Key Terms

- Software — programs and instructions that tell hardware what to do.
- System software — software that manages the computer itself.
- Application software — software that does a job for the user.
- Operating system — the main system software; manages hardware and programs.
- Utility software — tools that keep the computer working well and safely.
- Device driver — a program that lets the OS control a hardware device.
- Multitasking — running several programs at the same time.
- File management — organising files and folders on storage.
- General-purpose software — made for many users, e.g. a word processor.
- Customised software — written for one particular job or organisation.

Chapter 2: Practice Questions — Short

Short Questions (with answers)

Q1. Define software and state its two main types.

Answer: Software is the set of programs and instructions that tell the hardware what to do. Its two main types are system software and application software.

Q2. What is an operating system?

Answer: An operating system is the most important system software. It starts the computer, manages the processor, memory, files and devices, and links the user to the hardware.

Q3. Name any four operations performed by an operating system.

Answer: Process management, memory management, file management and device management (also providing a user interface).

Q4. What is utility software? Give two examples.

Answer: Utility software keeps the computer working well and safely. Examples: antivirus software and disk-cleaning tools.

Q5. What is the difference between general-purpose and customised software?

Answer: General-purpose software is made for many users and many jobs, e.g. a word processor. Customised software is written for one organisation or one job, e.g. a school fee system.

Chapter 2: Practice Questions — Long

Long Questions (with answers)

Q1. Describe the main operations of an operating system in detail.

Answer: An operating system manages processes by starting, running and switching between programs; it manages memory by giving each program the memory it needs; it manages files by organising them in folders and keeping a record of their place on storage; it manages devices by controlling printers, disks and other hardware through drivers; and it provides the user interface through which the user gives commands. Together these operations let the user work without knowing the details of the hardware.

Q2. Compare single-user and multi-user operating systems, and single-tasking and multitasking systems.

Answer: A single-user operating system serves one user at a time, while a multi-user system serves many users at once, keeping their work separate. A single-tasking system runs one program at a time, while a multitasking system runs several programs together, switching between them so quickly that they appear to run at the same time. Modern desktop and phone systems are usually single-user but multitasking; large servers are multi-user and multitasking.

Chapter 2: Multiple-Choice Questions

Multiple-Choice Questions

Q1. The programs that tell hardware what to do are called

(A) Hardware (B) Software (C) Firmware (D) Data

Q2. Which of these is system software?

(A) Word processor (B) Web browser (C) Operating system (D) Spreadsheet

Q3. Which of these is an example of utility software?

(A) Antivirus program (B) Word processor (C) Web browser (D) Media player

Q4. A device driver is a program that

(A) Writes letters (B) Lets the OS control a hardware device (C) Browses the internet (D) Plays music

Q5. File management in an operating system means

(A) Printing files (B) Organising files and folders on storage (C) Deleting the OS (D) Buying software

Q6. Multitasking means the operating system

(A) Runs one program only (B) Runs several programs at the same time (C) Has one user only (D) Has no memory

Q7. Which of these is general-purpose software?

(A) A hospital patient record system (B) A school fee system (C) A word processor (D) A bank's own banking software

Q8. The extension .jpg shows a file is

(A) A document (B) A picture (C) A sound file (D) A program

Q9. Which operating system is used on many desktop computers?

(A) Android (B) Windows (C) Both Windows and Linux (D) iOS only

Q10. Using unlicensed (pirated) software is

(A) Always safe (B) Against the law and risky (C) Faster (D) Free of viruses

Chapter 3: Data Communication & Networks

Study Notes

Data communication is the exchange of data between two or more devices through a transmission medium. Its basic components are the sender, the receiver, the message, the medium and the protocol (the agreed rules).

Transmission modes describe the direction of flow. In simplex mode data flows in one direction only (television broadcast). In half-duplex mode data flows in both directions but only one way at a time (walkie-talkie). In full-duplex mode data flows in both directions at the same time (telephone call).

A computer network is a group of connected computers and devices that share data and resources such as printers and internet connections. Networks are classified by size: a LAN (local area network) covers a small area such as a room or building; a MAN covers a city; a WAN (wide area network) covers a large area, even whole countries — the internet is the largest WAN.

Network topology is the layout of a network. In a star topology every device connects to a central hub or switch. In a bus topology all devices share one cable. In a ring topology devices are joined in a circle and data travels around it. In a mesh topology devices are connected to many others, giving many paths for data.

Common networking devices are: the modem, which connects a network to the internet; the router, which sends data between networks; the switch, which connects devices inside a LAN and forwards data to the right device; and the hub, which connects devices and sends incoming data to all of them.

Chapter 3: Data Communication & Networks (continued)

Transmission media are of two kinds. Guided media carry signals through a cable: twisted-pair cable, coaxial cable and fibre-optic cable, which carries light and is very fast. Unguided media carry signals through the air: radio waves, microwaves, infrared and satellite links, used by Wi-Fi and mobile phones.

The Domain Name System (DNS) translates easy-to-remember domain names, such as zahidenotes.com, into IP addresses, the numbers computers use to find each other. An IP address is the unique address of a device on a network.

The internet is a worldwide network of networks. It works by breaking data into small packets, sending them by the best route, and joining them again at the destination. The World Wide Web is a service on the internet — a collection of linked web pages that we view with a browser.

A website is a collection of related web pages under one domain, usually giving information. A web application is a program that runs in the browser and lets the user do something — for example, an online form, a mail service or an online shop.

Networks give great benefits — sharing, communication and access to information — but they also need care: use strong passwords, keep software updated, and do not share private information on open networks.

Key Terms

- Data communication — exchange of data between devices.
- Sender / Receiver — the device that sends / receives the message.
- Protocol — agreed rules for communication.
- Simplex — data flows in one direction only.
- Half-duplex — data flows both ways, one way at a time.
- Full-duplex — data flows both ways at the same time.
- LAN / MAN / WAN — networks covering a room, a city, a large area.
- Topology — the layout of a network (star, bus, ring, mesh).
- Router — sends data between networks.
- Switch — connects devices in a LAN and forwards data to the right one.
- DNS — translates domain names into IP addresses.
- IP address — the unique address of a device on a network.

Chapter 3: Practice Questions — Short

Short Questions (with answers)

Q1. What are the five basic components of data communication?

Answer: Sender, receiver, message, transmission medium and protocol.

Q2. What is the difference between LAN, MAN and WAN?

Answer: A LAN covers a small area such as a building, a MAN covers a city, and a WAN covers a large area such as a country or the world.

Q3. What is the function of the Domain Name System (DNS)?

Answer: DNS translates easy-to-remember domain names into IP addresses so computers can find each other.

Q4. Name three networking devices and state one job of each.

Answer: Modem — connects a network to the internet; router — sends data between networks; switch — connects devices in a LAN and forwards data to the right device.

Q5. What is the difference between a website and a web application?

Answer: A website is a collection of related pages that mainly give information, while a web application is a program in the browser that lets the user do something, such as fill in a form or shop online.

Chapter 3: Practice Questions — Long

Long Questions (with answers)

Q1. Describe the four network topologies and give one advantage of each.

Answer: In a star topology every device connects to a central hub or switch; it is easy to add devices and one cable fault affects only one device. In a bus topology all devices share one cable; it is cheap and simple for a small network. In a ring topology devices form a circle and data travels around it; every device gets an equal chance to send. In a mesh topology devices connect to many others; there are many paths, so the network keeps working even if one link fails.

Q2. Explain the three transmission modes with an example of each, and compare guided and unguided media.

Answer: In simplex mode data flows one way only, e.g. television broadcast. In half-duplex mode it flows both ways but one way at a time, e.g. a walkie-talkie. In full-duplex mode it flows both ways at the same time, e.g. a telephone call. Guided media carry signals through cables — twisted-pair, coaxial and fibre-optic, which is fastest. Unguided media carry signals through the air — radio, microwave and satellite — and are used for Wi-Fi and mobile phones, giving mobility but more interference.

Chapter 3: Multiple-Choice Questions

Multiple-Choice Questions

Q1. The device that sends a message is called the

(A) Receiver (B) Sender (C) Medium (D) Protocol

Q2. In which mode does data flow in one direction only?

(A) Full-duplex (B) Half-duplex (C) Simplex (D) Duplex

Q3. A walkie-talkie is an example of

(A) Simplex (B) Half-duplex (C) Full-duplex (D) No mode

Q4. A network that covers a single building is a

(A) WAN (B) MAN (C) LAN (D) Internet

Q5. In a star topology, devices connect to a

(A) Single shared cable (B) Central hub or switch (C) Circle (D) Satellite

Q6. Which device sends data between networks?

(A) Hub (B) Switch (C) Router (D) Printer

Q7. DNS translates domain names into

(A) Passwords (B) IP addresses (C) File names (D) Email addresses

Q8. Fibre-optic cable carries signals as

(A) Electricity only (B) Light (C) Sound (D) Radio waves

Q9. The internet is best described as

(A) A single computer (B) A worldwide network of networks (C) A web browser (D) A type of cable

Q10. Which of these is an unguided medium?

(A) Twisted-pair cable (B) Coaxial cable (C) Fibre-optic cable (D) Radio waves

Chapter 4: Computational Thinking & Algorithms

Study Notes

Computational thinking is a way of solving problems that a computer can help with. Its four pillars are decomposition (breaking a big problem into smaller parts), pattern recognition (finding similarities), abstraction (keeping only the important details and ignoring the rest) and algorithm design (writing a step-by-step plan).

Problem solving usually follows clear steps: understand the problem, plan a solution, carry out the plan, and check the result. A good plan is tested with small examples before it is used on the full problem.

An algorithm is a finite, step-by-step set of instructions to solve a problem. A good algorithm is clear, correct, finite (it must end), and efficient (it does not waste time or steps).

An algorithm can be written in plain words, in pseudocode (structured plain language), or as a flowchart (a diagram). Flowchart symbols include: oval for start/end, parallelogram for input/output, rectangle for a process, diamond for a decision, and arrows for the flow of control.

A dry run means tracing an algorithm by hand with sample values, step by step, to check that it gives the right answer. A dry run often finds mistakes before the program is ever written.

Chapter 4: Computational Thinking & Algorithms (continued)

There are three kinds of errors in a solution. A syntax error breaks the rules of the language and stops the program from running. A logical error lets the program run but gives the wrong answer. A runtime error appears while the program is running, for example when it tries to divide by zero.

Debugging is finding and fixing errors. The usual steps are: repeat the error, find where it happens, work out why it happens, fix it, and test again to make sure the fix works and nothing else has broken.

Common problem-solving methods include trial and error, breaking the problem into parts, looking for a pattern, and working backwards from the answer. The best method depends on the problem.

Algorithms are used everywhere: finding the greater of two numbers, finding the area of a rectangle, checking whether a number is even or odd, printing the first five natural numbers, and adding a list of numbers are all small algorithms a student can write and dry-run by hand.

Efficiency matters: two algorithms can both give the right answer, but the one that uses fewer steps is better, especially when the input is large. Counting the steps for a small input is a simple way to compare two algorithms.

Key Terms

- Computational thinking — solving problems in a way a computer can help with.
- Decomposition — breaking a big problem into smaller parts.
- Pattern recognition — finding similarities between problems.
- Abstraction — keeping only the important details.
- Algorithm — a finite step-by-step plan to solve a problem.
- Pseudocode — an algorithm written in structured plain language.
- Flowchart — a diagram of an algorithm using standard symbols.
- Dry run — tracing an algorithm by hand with sample values.
- Syntax error — a mistake in the rules of the language.
- Logical error — the program runs but gives the wrong answer.
- Runtime error — an error that appears while the program runs.
- Debugging — finding and fixing errors.

Chapter 4: Practice Questions — Short

Short Questions (with answers)

Q1. What is computational thinking? Name its four pillars.

Answer: It is a way of solving problems that a computer can help with. Its pillars are decomposition, pattern recognition, abstraction and algorithm design.

Q2. What is an algorithm? State two qualities of a good algorithm.

Answer: An algorithm is a finite, step-by-step set of instructions to solve a problem. A good algorithm is clear and correct, and it must end and be efficient.

Q3. What is a dry run and why is it useful?

Answer: A dry run is tracing an algorithm by hand with sample values. It checks the logic and finds mistakes before any program is written.

Q4. Name the flowchart symbols for start/end, input/output, process and decision.

Answer: Start/end — oval; input/output — parallelogram; process — rectangle; decision — diamond.

Q5. What is the difference between a syntax error and a logical error?

Answer: A syntax error breaks the rules of the language and stops the program from running. A logical error lets the program run but gives the wrong answer.

Chapter 4: Practice Questions — Long

Long Questions (with answers)

Q1. Explain decomposition, pattern recognition and abstraction with a simple everyday example.

Answer: Suppose a student must plan a school timetable. Decomposition breaks the task into parts: list the subjects, list the teachers, list the free rooms. Pattern recognition notices that every class follows the same daily pattern of periods. Abstraction keeps only the important details — subject, teacher, room and time — and ignores unimportant ones such as the colour of the classroom. Together they turn a big confusing task into small clear steps that can be written as an algorithm.

Q2. Describe the three kinds of errors in a program and the steps of debugging.

Answer: A syntax error breaks the language rules and stops the program from running. A logical error lets it run but gives the wrong answer. A runtime error appears during running, such as dividing by zero. To debug: repeat the error, find where it happens, work out why, fix it, and test again to confirm the fix and check that nothing else has broken.

Chapter 4: Multiple-Choice Questions

Multiple-Choice Questions

Q1. Breaking a big problem into smaller parts is called

(A) Abstraction (B) Decomposition (C) Debugging (D) Compiling

Q2. Keeping only the important details and ignoring the rest is

(A) Pattern recognition (B) Abstraction (C) Dry run (D) Debugging

Q3. A finite step-by-step plan to solve a problem is an

(A) Algorithm (B) Program (C) Error (D) Flowchart only

Q4. In a flowchart, a diamond shape means a

(A) Process (B) Input (C) Decision (D) Start

Q5. In a flowchart, input or output is shown by a

(A) Oval (B) Rectangle (C) Diamond (D) Parallelogram

Q6. Tracing an algorithm by hand with sample values is a

(A) Dry run (B) Runtime error (C) Syntax error (D) Protocol

Q7. A program that runs but gives the wrong answer has a

(A) Syntax error (B) Logical error (C) Power failure (D) Hardware fault

Q8. Dividing by zero while a program runs causes a

(A) Syntax error (B) Logical error (C) Runtime error (D) Spelling error

Q9. Finding and fixing errors in a program is called

(A) Debugging (B) Compiling (C) Printing (D) Formatting

Q10. Which of these is a quality of a good algorithm?

(A) It never ends (B) It is unclear (C) It is finite and efficient (D) It has many errors

Chapter 5: Web Designing

Study Notes

A website is a collection of related web pages under one domain name. A web page is a single document that a browser shows. Web designing is the planning and building of these pages so they are clear, attractive and easy to use.

HTML (HyperText Markup Language) is the language used to build the structure of a web page. It uses tags, written inside angle brackets. Most tags come in pairs: an opening tag and a closing tag, for example <p> ... </p> for a paragraph.

A basic HTML page has a structure: <!DOCTYPE html> declares the document type, <html> is the root element, <head> holds the title and other information, and <body> holds what the visitor sees.

Common HTML tags include: <h1> to <h6> for headings, <p> for a paragraph, <br> for a line break, <a> for a link, <img> for an image, <ul> and <ol> for lists, <table> for a table, and <form> for collecting input from the user.

An HTML comment is written as <!-- comment -->. Comments are not shown on the page; they are notes for the person who writes or reads the code.

Chapter 5: Web Designing (continued)

CSS (Cascading Style Sheets) controls how a page looks: colours, fonts, sizes, spacing and layout. CSS can be written inside a tag, inside a <style> block in the head, or in a separate .css file linked to the page. A separate file is best because one file can style many pages.

JavaScript is a programming language that makes a web page interactive. It can check a form before it is sent, change text on the page, show a message, or respond when the user clicks a button. In HTML, JavaScript is placed inside a <script> element, usually at the end of the body or in the head.

The difference between a website and a web application matters: a website mainly presents information, while a web application lets the user do things — search, log in, fill a form, place an order. Many modern sites are a mix of both.

Good web design follows simple rules: clear headings, readable text size, good colour contrast, images that load quickly, and a layout that works on a phone as well as on a computer. A design that changes to fit the screen is called responsive design.

Before publishing a website, test it: check every link, check the page on a phone and on a computer, check that images appear, and check that forms work. Broken links and unreadable text drive visitors away.

Key Terms

- HTML — HyperText Markup Language; builds the structure of a web page.
- Tag — a command in HTML, written in angle brackets.
- Element — an opening tag, content and closing tag together.
- Heading tags — <h1> to <h6>, from largest to smallest.
- Hyperlink — a link from one page to another, made with <a>.
- CSS — Cascading Style Sheets; controls how a page looks.
- JavaScript — a language that makes web pages interactive.
- Responsive design — a design that fits phones and computers.
- Web application — a program that runs in the browser.
- Browser — the program that shows web pages, e.g. Chrome or Firefox.

Chapter 5: Practice Questions — Short

Short Questions (with answers)

Q1. What is HTML and what is it used for?

Answer: HTML is HyperText Markup Language. It is used to build the structure of a web page using tags.

Q2. What is the basic structure of an HTML page?

Answer: It has <!DOCTYPE html>, an <html> root element, a <head> with the title and information, and a <body> with what the visitor sees.

Q3. What is the difference between a website and a web application?

Answer: A website mainly presents information, while a web application lets the user do things in the browser, such as filling in a form or placing an order.

Q4. What is CSS used for?

Answer: CSS controls how a page looks — colours, fonts, sizes, spacing and layout.

Q5. Inside which HTML element do we put JavaScript?

Answer: Inside the <script> element, usually at the end of the body or in the head.

Chapter 5: Practice Questions — Long

Long Questions (with answers)

Q1. Explain the main HTML tags used to build a web page, with an example of each.

Answer: Headings use <h1> to <h6>, with <h1> the largest. Paragraphs use <p>. A line break is <br>. Links use <a href="...">, images use <img src="...">, lists use <ul> or <ol> with <li> items, tables use <table> with rows <tr> and cells <td>, and forms use <form> with input fields. Together these tags build the whole structure of a page, which CSS then styles and JavaScript makes interactive.

Q2. Describe the roles of HTML, CSS and JavaScript in a web page, and the rules of good web design.

Answer: HTML builds the structure and content, CSS controls the appearance, and JavaScript adds interactivity such as checking forms and responding to clicks. Good design needs clear headings, readable text, good colour contrast, fast-loading images and a responsive layout that fits both phones and computers. Before publishing, every link, image and form should be tested on more than one device.

Chapter 5: Multiple-Choice Questions

Multiple-Choice Questions

Q1. HTML stands for

(A) HyperText Markup Language (B) HighText Machine Language (C) Hyperlink Text Mode Language (D) Home Tool Markup Language

Q2. Which tag is used for a paragraph?

(A)
  (B) <p> (C) <h1> (D)

Q3. Which tag makes the largest heading?

(A) <h6> (B) <h3> (C) <h1> (D) <head>

Q4. An HTML comment is written as

(A) // comment (B) <!-- comment --> (C) /* comment */ (D) # comment

Q5. CSS is used to control a page's

(A) Structure only (B) Appearance — colours, fonts and layout (C) Internet speed (D) File size

Q6. JavaScript is used to make a web page

(A) Static only (B) Interactive (C) Printed (D) Deleted

Q7. JavaScript code is placed inside the

(A) <style> element (B) <script> element (C) <link> element (D) <img> element

Q8. A design that fits both phones and computers is called

(A) Fixed design (B) Responsive design (C) Printed design (D) Offline design

Q9. Which tag is used to show an image?

(A) <a> (B) <img> (C) <p> (D) <table>

Q10. The visible part of a web page is written inside the

(A) <head> (B) <title> (C) <body> (D) <html> only

Chapter 6: Data & Analysis

Study Notes

Data are raw facts gathered about things — numbers, words, pictures or measurements. Information is data that has been processed and organised so that it means something and can be used to make a decision.

Data come in types. Nominal data are labels with no order, such as blood group or favourite colour. Ordinal data have an order, such as first, second and third place. Numerical data are numbers that can be measured or counted, such as height or marks.

The data science process has clear steps: first understand the problem, then collect the data, then clean the data (remove errors and duplicates), then analyse it to find patterns, and finally present the results so others can understand them.

Data can be collected by observation, by surveys and questionnaires, by sensors and machines, and from records that already exist. Good data are accurate, complete and collected fairly.

Data analysis means looking for patterns, averages and relationships in data. A table organises data in rows and columns; a chart or graph shows it visually so patterns are easy to see.

Chapter 6: Data & Analysis (continued)

Data visualisation is the use of pictures — bar charts, pie charts and line graphs — to show data clearly. A bar chart compares values, a pie chart shows parts of a whole, and a line graph shows change over time. The right chart depends on the question being asked.

Common tools for working with data are spreadsheets such as Microsoft Excel and Google Sheets, and visualisation tools such as Tableau, which is designed for detailed, interactive charts and dashboards.

Big data means data that is too large, too fast or too varied for ordinary tools to handle easily. Big data is valuable because, when analysed well, it can show trends — for example, which products people buy, where disease spreads, or how traffic moves in a city.

Data must be handled honestly and safely. Never change data to get a wanted result, never use someone's private data without permission, and always say where the data came from.

A short example: a school collects the marks of a class, cleans the list by removing a duplicate entry, finds the average, draws a bar chart of marks by subject, and sees that one subject needs more practice. That is the whole data science process in one small task.

Key Terms

- Data — raw facts gathered about things.
- Information — data processed and organised so it is useful.
- Nominal data — labels with no order, e.g. blood group.
- Ordinal data — data with an order, e.g. first, second, third.
- Numerical data — data that are numbers, e.g. height.
- Data cleaning — removing errors and duplicates from data.
- Data analysis — finding patterns and meaning in data.
- Data visualisation — showing data with charts and graphs.
- Bar chart — a chart that compares values with bars.
- Pie chart — a chart that shows parts of a whole.
- Big data — very large, fast or varied data.
- Tableau — a tool for detailed, interactive data visualisation.

Chapter 6: Practice Questions — Short

Short Questions (with answers)

Q1. What is the difference between data and information?

Answer: Data are raw facts gathered about things. Information is data that has been processed and organised so that it means something and can be used.

Q2. What is the difference between nominal and ordinal data?

Answer: Nominal data are labels with no order, such as blood group. Ordinal data have an order, such as first, second and third place.

Q3. What is the first step in the data science process?

Answer: Understanding the problem — knowing what question the data must answer.

Q4. What is data cleaning?

Answer: Data cleaning is removing errors, duplicates and incomplete entries from data before analysing it.

Q5. Name three types of chart and say what each is used for.

Answer: A bar chart compares values; a pie chart shows parts of a whole; a line graph shows change over time.

Chapter 6: Practice Questions — Long

Long Questions (with answers)

Q1. Describe the steps of the data science process in order, using the example of a school checking class marks.

Answer: First understand the problem — which subject needs attention? Then collect the data — the marks of the class. Then clean the data — remove duplicate or wrong entries. Then analyse it — find averages and compare subjects. Finally present the results — a bar chart of marks by subject — so teachers can see at a glance which subject needs more practice.

Q2. Explain nominal, ordinal and numerical data, and explain why big data is valuable.

Answer: Nominal data are labels with no order, such as blood group. Ordinal data have an order, such as race positions. Numerical data are numbers that can be measured or counted, such as height or marks. Big data is very large, fast or varied data that ordinary tools cannot handle easily; it is valuable because careful analysis of it can reveal trends — for example, buying habits, the spread of disease, or traffic patterns — that small data cannot show.

Chapter 6: Multiple-Choice Questions

Multiple-Choice Questions

Q1. Raw facts gathered about things are called

(A) Information (B) Data (C) Charts (D) Reports

Q2. Which of these is nominal data?

(A) Height in cm (B) First, second, third (C) Blood group (D) Temperature

Q3. Data with an order, such as first and second place, is

(A) Nominal (B) Ordinal (C) Numerical (D) Big data

Q4. What is the first step in the data science process?

(A) Data cleaning (B) Data analysis (C) Understanding the problem (D) Data collection

Q5. Removing errors and duplicates from data is called

(A) Data cleaning (B) Data collection (C) Data visualisation (D) Data storage

Q6. A chart that shows parts of a whole is a

(A) Bar chart (B) Line graph (C) Pie chart (D) Table

Q7. A line graph is best for showing

(A) Parts of a whole (B) Change over time (C) Labels with no order (D) File names

Q8. Which tool is designed for detailed, interactive visualisations?

(A) Microsoft Excel (B) Google Sheets (C) Tableau (D) PowerPoint

Q9. Big data is valuable because it can reveal

(A) Nothing (B) Trends and patterns (C) Only errors (D) Only small numbers

Q10. Data that has been processed so it is useful is called

(A) Raw data (B) Information (C) A chart (D) A survey

Chapter 7: Applications of Computer Science

Study Notes

Computer science is used in almost every part of life. This chapter looks at some of its most important applications: artificial intelligence, mobile technology, cloud computing, the internet of things, and digital services in health, education and business.

Artificial intelligence (AI) is the ability of a computer to do tasks that normally need human intelligence, such as recognising speech, understanding language, or making decisions. Machine learning is a part of AI in which a computer learns patterns from data instead of being given every rule by hand.

Some applications of AI are: virtual assistants that answer questions, recommendation systems that suggest films or products, image recognition that reads number plates or medical scans, and chatbots that answer customer questions.

Mobile technology means the phones, tablets and wireless networks that people carry everywhere. Its key benefits are: communication at any time and place, access to information and learning, mobile banking and shopping, and location-based services such as maps and ride booking.

Cloud computing means using computing services — storage, software and processing — over the internet instead of on one local computer. A student can store files in the cloud, open them from any device, and share them with others without carrying a USB drive.

Chapter 7: Applications of Computer Science (continued)

The Internet of Things (IoT) is the connection of everyday objects to the internet — a smart watch, a home thermostat, a farm sensor that checks soil water. These devices collect data and act on it, often without a person giving each command.

In health, computers help doctors keep patient records, read scans, and offer telemedicine — a doctor advising a patient in a far village by video call. In education, they give online lessons, digital books and practice tests to students anywhere. In business, they keep stock records, take orders online and reach customers through websites and social media.

Robotics is the building of machines that can sense, decide and act. Robots work in factories, in warehouses, in surgery, and in places too dangerous for people, such as a burning building or a deep mine.

Emerging technologies bring new jobs and new skills, but they also need care: a person must check what an AI system says, protect the data it uses, and keep learning as the technology changes.

When studying applications, always ask three questions: what problem does it solve, what data does it use, and who benefits from it? That habit keeps the focus on people, not only on machines.

Key Terms

- Artificial intelligence (AI) — computers doing tasks that need human intelligence.
- Machine learning — AI that learns patterns from data.
- Virtual assistant — software that answers questions by voice or text.
- Chatbot — a program that answers customer questions automatically.
- Mobile technology — phones, tablets and wireless networks people carry.
- Cloud computing — storage and software used over the internet.
- Internet of Things (IoT) — everyday objects connected to the internet.
- Telemedicine — a doctor advising a patient at a distance.
- Robotics — building machines that can sense, decide and act.
- Recommendation system — software that suggests films, products or songs.

Chapter 7: Practice Questions — Short

Short Questions (with answers)

Q1. What is artificial intelligence? Give two applications of AI.

Answer: AI is the ability of a computer to do tasks that normally need human intelligence. Applications: virtual assistants that answer questions, and recommendation systems that suggest films or products.

Q2. What is machine learning?

Answer: Machine learning is a part of AI in which a computer learns patterns from data instead of being given every rule by hand.

Q3. Identify three key benefits of mobile technology.

Answer: Communication at any time and place; access to information and learning; and mobile banking, shopping and location services such as maps.

Q4. What is cloud computing?

Answer: Cloud computing is using storage, software and processing over the internet instead of on one local computer, so files can be opened from any device.

Q5. What is the Internet of Things? Give one example.

Answer: The Internet of Things is the connection of everyday objects to the internet. Example: a farm sensor that checks soil water and reports it online.

Chapter 7: Practice Questions — Long

Long Questions (with answers)

Q1. Describe the applications of computer science in health, education and business.

Answer: In health, computers keep patient records, help read medical scans, and support telemedicine, where a doctor advises a patient in a far village by video call. In education, they provide online lessons, digital books and practice tests to students anywhere. In business, they keep stock records, take orders online, and reach customers through websites and social media. In each case the computer does the same work — storing, processing and sharing information — but the benefit is felt by people.

Q2. Explain artificial intelligence, machine learning and robotics, and say what care they need.

Answer: Artificial intelligence is a computer doing tasks that need human intelligence, such as recognising speech or making decisions. Machine learning is AI that learns patterns from data rather than from fixed rules. Robotics builds machines that sense, decide and act, and robots work in factories, warehouses, surgery and dangerous places. These technologies need care: their answers must be checked, the data they use must be protected, and people must keep learning as the technology changes.

Chapter 7: Multiple-Choice Questions

Multiple-Choice Questions

Q1. AI stands for

(A) Automatic Internet (B) Artificial Intelligence (C) Advanced Information (D) Applied Industry

Q2. A computer learning patterns from data is called

(A) Cloud computing (B) Machine learning (C) Robotics (D) Telemedicine

Q3. Which of these is an application of AI?

(A) A paper book (B) A recommendation system (C) A pencil (D) A printed map

Q4. Cloud computing means using services

(A) Only on one local computer (B) Over the internet (C) Without any device (D) Only by cable

Q5. A farm sensor that reports soil water online is an example of

(A) Cloud computing only (B) The Internet of Things (C) A chatbot (D) A spreadsheet

Q6. Telemedicine lets a doctor

(A) Travel by plane only (B) Advise a patient at a distance (C) Print books (D) Build robots

Q7. Which of these is a key benefit of mobile technology?

(A) It needs no network (B) Communication at any time and place (C) It never needs charging (D) It replaces all computers

Q8. A chatbot is a program that

(A) Answers customer questions automatically (B) Prints documents (C) Cleans disks (D) Makes phone calls only

Q9. Robots are useful in places that are

(A) Too dangerous for people (B) Always safe (C) Without electricity (D) Only offices

Q10. Which question should be asked about any new application?

(A) What problem does it solve and who benefits? (B) How expensive is the box? (C) What colour is it? (D) Who made the cable?

Chapter 8: Impacts of Computing

Study Notes

Computing has changed how people learn, work, shop and talk to each other. Its impacts are both positive and negative, and a good citizen of the digital world understands both.

Social networking lets people keep in touch with family and friends, share news, learn new skills and find work. Its positive impacts are fast communication, access to learning, and a voice for people who would otherwise not be heard.

The negative impacts of social networking are also real: time wasted, comparison with others that harms confidence, the spread of false news, cyberbullying, and the loss of privacy when too much personal information is shared.

Cyberbullying is bullying through phones or the internet — hurtful messages, sharing embarrassing pictures, or excluding someone online. It should be reported to a trusted adult and to the platform, and the evidence should be saved, not deleted.

Privacy means control over your own information. Strong, unique passwords, two-factor checks where available, and thinking before sharing a photo or location all protect privacy. Once something is posted online, it is very hard to take back.

Chapter 8: Impacts of Computing (continued)

Phishing is a trick in which a fake message or website pretends to be a trusted bank, school or company and tries to steal passwords or money. The signs are urgent language, spelling mistakes, and a link that does not match the real address. Never click such a link or send a password by message.

Computer laws protect people and their work. They make it an offence to break into someone's computer, to steal or damage data, and to copy software or creative work without permission. Copyright gives the creator of a book, song, picture or program the right to control how it is used.

Digital citizenship means using technology responsibly: respect others, check facts before sharing, follow the law, and protect your own and others' privacy. Netiquette is the polite behaviour expected online — the same respect you show face to face.

Computing also affects health and the environment. Long screen time without breaks can strain eyes and posture, and electronic waste harms the environment if it is dumped instead of recycled. The digital divide is the gap between people who have access to computers and the internet and those who do not.

The rule for a student is simple: use technology to learn and to help others, keep private information private, and ask a trusted adult when something online feels wrong.

Key Terms

- Social networking — online services for keeping in touch and sharing.
- Cyberbullying — bullying through phones or the internet.
- Privacy — control over your own information.
- Phishing — a fake message or site that tries to steal passwords or money.
- Copyright — the creator's legal right over their work.
- Computer laws — laws against breaking into computers and stealing data.
- Digital citizenship — using technology responsibly and lawfully.
- Netiquette — polite behaviour online.
- Digital divide — the gap between people with and without access to technology.
- Electronic waste — old devices thrown away; harmful if not recycled.

Chapter 8: Practice Questions — Short

Short Questions (with answers)

Q1. Define social networking and give two positive impacts of it.

Answer: Social networking is online services for keeping in touch and sharing. Positive impacts: fast communication with family and friends, and access to learning and work.

Q2. What is cyberbullying and what should a student do about it?

Answer: Cyberbullying is bullying through phones or the internet. It should be reported to a trusted adult and to the platform, and the evidence should be saved.

Q3. Why are strong, unique passwords important?

Answer: Strong, unique passwords make it harder for someone to guess a password and get into an account; if one password is stolen, the other accounts stay safe.

Q4. What is phishing? Name two signs of a phishing message.

Answer: Phishing is a fake message or website pretending to be trusted, trying to steal passwords or money. Signs: urgent language, and a link that does not match the real address.

Q5. What is the importance of computer laws?

Answer: Computer laws protect people and their work: they make it an offence to break into computers, steal or damage data, and copy software or creative work without permission.

Chapter 8: Practice Questions — Long

Long Questions (with answers)

Q1. Define social networking and discuss its positive and negative impacts.

Answer: Social networking is the use of online services to keep in touch and share information. Its positive impacts are fast communication, access to learning and work, and a voice for people who would otherwise not be heard. Its negative impacts are wasted time, loss of confidence from comparison with others, the spread of false news, cyberbullying, and loss of privacy when too much personal information is shared. The wise user enjoys the benefits while guarding time, privacy and truth.

Q2. Explain digital citizenship, including privacy, copyright and netiquette.

Answer: Digital citizenship is using technology responsibly and lawfully. It means protecting privacy with strong passwords and care about what is shared; respecting copyright by not copying books, songs, pictures or programs without permission; and following netiquette — the polite behaviour expected online, the same respect shown face to face. It also means checking facts before sharing, obeying computer laws, and asking a trusted adult when something online feels wrong.

Chapter 8: Multiple-Choice Questions

Multiple-Choice Questions

Q1. A positive impact of social networking is

(A) Fast communication (B) Cyberbullying (C) Loss of privacy (D) False news

Q2. Cyberbullying should be

(A) Ignored and hidden (B) Reported to a trusted adult (C) Shared further (D) Answered with insults

Q3. Why use a strong, unique password?

(A) To make accounts easy to hack (B) To make it harder for someone to access the account (C) To avoid updates (D) To share it easily

Q4. Phishing tries to steal

(A) Passwords and money (B) Paper books (C) Printers (D) Cables

Q5. A sign of a phishing message is

(A) The real address of the bank (B) Urgent language and a mismatched link (C) Correct spelling only (D) A message from a teacher

Q6. Copyright gives the creator the right to

(A) Control how their work is used (B) Steal other work (C) Break into computers (D) Share passwords

Q7. Polite behaviour online is called

(A) Phishing (B) Netiquette (C) Hacking (D) Piracy

Q8. The digital divide is the gap between people who

(A) Have and do not have access to technology (B) Like and dislike phones (C) Are tall and short (D) Live in cities only

Q9. Long screen time without breaks can cause

(A) Better eyesight (B) Eye strain and poor posture (C) Faster internet (D) More memory

Q10. Old devices thrown away instead of recycled are called

(A) Cloud waste (B) Electronic waste (C) Paper waste (D) Food waste

Chapter 9: Entrepreneurship in Digital Age

Study Notes

An entrepreneur is a person who starts a new business, taking a risk to turn an idea into something useful. Entrepreneurship in the digital age means doing this with digital tools — websites, apps, social media and online payments.

A business idea starts from a problem. The entrepreneur asks: whose problem is this, how many people have it, and would they pay for a solution? A good idea solves a real problem for real people.

Digital tools help a small business reach many people cheaply. A website or social media page shows the products, a messaging app takes orders, and an online payment service takes the money. Examples of digital technology used by modern entrepreneurs are mobile apps, social media pages and online shops.

A business plan is a written plan for the business: what it sells, who its customers are, how much it will cost, how much it will charge, and how it will reach customers. Writing the plan forces the entrepreneur to think before spending money.

Digital marketing means reaching customers online: a clear page about the product, honest photos, fair prices, and answering customers quickly. Trust is the most valuable asset of a small online business.

Chapter 9: Entrepreneurship in Digital Age (continued)

E-commerce is buying and selling over the internet. A small seller in Quetta can sell to a customer in another city without a shop, but must be honest about the product, the price and the delivery time.

Freelancing is working for many clients instead of one employer, often online — designing, writing, translating or teaching. A freelancer needs a skill, a way to show the work, and a way to be paid safely.

Ethical and sustainable entrepreneurship means earning honestly and thinking of the future: no false claims about a product, fair treatment of workers and customers, and choices that do not harm the environment.

A young entrepreneur should start small: learn a skill, test the idea with a few customers, listen to what they say, and improve. Most successful businesses began as a small test, not a big launch.

Money, time and trust must all be managed. Keep a simple record of what comes in and what goes out, keep promises to customers, and never spend business money as if it were personal money.

Key Terms

- Entrepreneur — a person who starts a new business, taking a risk.
- Business idea — a plan to solve a real problem for customers.
- Business plan — a written plan: product, customers, costs, prices, marketing.
- Digital marketing — reaching customers online.
- E-commerce — buying and selling over the internet.
- Freelancing — working online for many clients instead of one employer.
- Digital tools — websites, apps, social media and online payments.
- Sustainable entrepreneurship — earning honestly without harming people or the environment.
- Customer — the person who buys the product or service.
- Profit — what remains after costs are paid from income.

Chapter 9: Practice Questions — Short

Short Questions (with answers)

Q1. What is an entrepreneur?

Answer: An entrepreneur is a person who starts a new business, taking a risk to turn an idea into something useful.

Q2. How does a good business idea begin?

Answer: It begins from a problem: whose problem it is, how many people have it, and whether they would pay for a solution.

Q3. Name a digital technology used by modern entrepreneurs.

Answer: A mobile app (also: a social media page or an online shop).

Q4. What is a business plan?

Answer: A business plan is a written plan for the business: what it sells, who its customers are, how much it will cost, how much it will charge, and how it will reach customers.

Q5. What is freelancing?

Answer: Freelancing is working for many clients instead of one employer, often online — for example designing, writing, translating or teaching.

Chapter 9: Practice Questions — Long

Long Questions (with answers)

Q1. Describe the steps of starting a small digital business, from the idea to the first customers.

Answer: Start from a real problem and check who has it and whether they would pay for a solution. Write a short business plan: the product, the customers, the costs, the price and how to reach customers. Use digital tools — a social media page or a simple website to show the product, a messaging app to take orders, and an online payment service to take money. Start small, test with a few customers, listen to them, and improve. Keep honest photos and prices, answer customers quickly, and keep a simple record of money in and money out.

Q2. Explain ethical and sustainable entrepreneurship.

Answer: Ethical and sustainable entrepreneurship means earning honestly and thinking of the future. It means no false claims about a product, fair treatment of workers and customers, honest prices, and choices that do not harm the environment. Trust is the most valuable asset of a small business, and it is built by keeping promises and being honest, even when honesty costs a sale.

Chapter 9: Multiple-Choice Questions

Multiple-Choice Questions

Q1. An entrepreneur is a person who

(A) Works only for one employer (B) Starts a new business, taking a risk (C) Never takes a risk (D) Only buys products

Q2. A good business idea starts from

(A) A real problem (B) A copied product (C) A false claim (D) A random guess

Q3. An example of a digital technology used by modern entrepreneurs is

(A) Newspaper advertisements (B) Television commercials (C) Mobile apps (D) Door-to-door sales

Q4. A business plan is

(A) A written plan for the business (B) A secret code (C) A type of computer (D) A bank account

Q5. E-commerce means

(A) Buying and selling over the internet (B) Selling only in a shop (C) Buying with cash only (D) Selling without customers

Q6. Freelancing means working

(A) For one employer only (B) For many clients, often online (C) Without any skill (D) Only in an office

Q7. Digital marketing means reaching customers

(A) Only by post (B) Online (C) Only by phone call (D) Only in person

Q8. The most valuable asset of a small online business is

(A) A big shop (B) Trust (C) A fast car (D) Many cables

Q9. Ethical entrepreneurship means

(A) False claims about products (B) Earning honestly and fairly (C) Hiding prices (D) Copying others' work

Q10. A young entrepreneur should start by

(A) Spending all money at once (B) Starting small and testing the idea (C) Ignoring customers (D) Making false promises

Practical Work — What to Practise

Computer Science is a practical subject. The practical side of the Balochistan Class 9 course is assessed by a Practical Based Assessment and a Project Based Assessment (see the paper pattern on page 2). Practise these tasks in the computer lab and keep a neat practical notebook.

Practical Based Assessment — practise these algorithms

- Write an algorithm to find the area of a rectangle.
- Write an algorithm to find the area of a circle.
- Write an algorithm to find the greater number between two values.
- Write an algorithm to check whether a number is even or odd.
- Write an algorithm to print the first five natural numbers.
- Write an algorithm to print the sum of given numbers.
- Write an algorithm to print the daily timetable of a school boy.
- Write an algorithm to represent withdrawing money from an ATM (insert card, enter PIN, choose amount, check balance, take cash).
- Demonstrate the basic functions of an operating system: file and directory management, process management and multitasking, device and network management.
- Draw a table of the different types of operating systems and identify them in daily life.

Project Based Assessment — project ideas

- Prepare a scientific computer project using pictures, cardboard, formic sheets and glazed paper.
- Make a model or chart that explains a topic from this book, for example network topologies or the parts of a computer.
- Any other favourite project or model related to the Class 9 course, with a complete explanation verified by the school.

> **Note:** The practical list above is taken from the official BBISE Quetta syllabus for Practical Based Assessment & Project Based Assessment 2026 (Annex-2 of the board's SSC-I model paper document). The exact tasks set in an examination are the board's choice.

MCQ Answer Key — All Chapters

Each chapter has 10 MCQs. Find the chapter, then the question number.

Chapter 1: Computer Systems

Q1: B Q2: B Q3: C Q4: B Q5: C Q6: B Q7: C Q8: B Q9: C Q10: B

Chapter 2: Computer Software

Q1: B Q2: C Q3: A Q4: B Q5: B Q6: B Q7: C Q8: B Q9: C Q10: B

Chapter 3: Data Communication & Networks

Q1: B Q2: C Q3: B Q4: C Q5: B Q6: C Q7: B Q8: B Q9: B Q10: D

Chapter 4: Computational Thinking & Algorithms

Q1: B Q2: B Q3: A Q4: C Q5: D Q6: A Q7: B Q8: C Q9: A Q10: C

Chapter 5: Web Designing

Q1: A Q2: B Q3: C Q4: B Q5: B Q6: B Q7: B Q8: B Q9: B Q10: C

Chapter 6: Data & Analysis

Q1: B Q2: C Q3: B Q4: C Q5: A Q6: C Q7: B Q8: C Q9: B Q10: B

Chapter 7: Applications of Computer Science

Q1: B Q2: B Q3: B Q4: B Q5: B Q6: B Q7: B Q8: A Q9: A Q10: A

Chapter 8: Impacts of Computing

Q1: A Q2: B Q3: B Q4: A Q5: B Q6: A Q7: B Q8: A Q9: B Q10: B

Chapter 9: Entrepreneurship in Digital Age

Q1: B Q2: A Q3: C Q4: A Q5: A Q6: B Q7: B Q8: B Q9: B Q10: B

> **Revision tip:** First read the study notes of a chapter, then answer the short and long questions in your own words without looking, and finally try the MCQs. Check the key only after you have answered.