

CHECKLIST

1.0 INFORMATION & COMMUNICATION TECHNOLOGY & SOCIETY

1.1 Introduction to Information and Communication Technology

1.1.1.1	Define ICT.
1.1.1.2	Describe the brief evolution of computers.
1.1.2.1	List the usage of ICT in everyday life.
1.1.2.2	State the differences between computerised and non-computerised systems.
1.1.2.3	State the impact of ICT on society.

1.2 Computer Ethics and Legal Issues

1.2.1.1	Define Computer Ethics, Code of Ethics, Intellectual Property, Privacy, Computer Crime and Cyber Law.
1.2.1.2	Differentiate between ethics and law .
1.2.1.3	State the need for intellectual property laws.
1.2.2.1	List ways to protect privacy.
1.2.2.2	State authentication and verification technologies : User identification, Possessed Object, Biometric device
1.2.3.1	List effects of controversial contents on society: Pornography and Slander
1.2.3.2	Describe the process of filtering to control access to controversial contents.
1.2.4.1	Explain the need for Cyber Law.
1.2.4.2	Explain briefly the computer crimes: Fraud, Copyright Infringement, Theft, Attacks

1.3 Computer Security

1.3.1.1	Define computer security.
1.3.2.1	Explain briefly the different threats to computer security: * Malicious code * Hacking * Natural disaster * Theft
1.3.3.1	Select the appropriate security measures to overcome the computer threats
1.3.3.2	Apply the correct security procedures : Antivirus, Anti-Spyware, Firewall, Data backup * Cryptography (Cipher text, Plain text), Human aspects

2.0 COMPUTER SYSTEMS

2.1 System Concept

2.1.1.1	Define computer systems.
2.1.1.2	State the meaning of input, process, output and storage.
2.1.1.3	Describe the information processing cycle: input, process, output and storage .
2.1.2.1	State the relationship of data representation: bit, byte and character .
2.1.3.1	Explain the function of ASCII code .
2.1.4.1	State the units of data measurement : Bit, Byte, Kilobyte (KB), Megabyte (MB), Gigabyte (GB) and Terabyte (TB)
2.1.5.1	State the units of clock speed measurement: Megahertz (MHz), Gigahertz(GHz)

2.2 Hardware

2.2.1.1	Identify the input devices used for text, graphic, audio and video.
2.2.2.1	Identify the output devices used for text, graphic, audio and video
2.2.3.1	Identify the location of the central processing unit (CPU), expansion slots, expansion cards, RAM slots, ports and connectors on the motherboard.
2.2.4.1	Explain types and functions of : primary storage and secondary storage State the differences between primary storage (RAM, ROM) and secondary storage (hard disk, thumb drive, CD ROM, floppy disk)

2.3 Software

2.3.1.1	State the various types of Operating System (OS) used on different platforms.
2.3.1.2	State the functions of OS – e.g Starting a computer, Provides a user interface.
2.3.1.3	State the different interfaces of Operating System : Command Line Interface e.g: DOS and Graphical User Interface e.g : Windows XP
2.3.2.1	State the types of application software (word processing, spreadsheet, presentation, graphic).
2.3.2.2	Describe the uses of application
2.3.3.1	Differentiate between the types and usage of utility program (files management, diagnostic and file compression).
2.3.4.1	Differentiate between proprietary and open source software.

3.0 COMPUTER NETWORKS AND COMMUNICATIONS

3.1 Basic Concepts of Computer Networks and Communications

3.1.1.1	Define computer networks.
3.1.1.2	Define communications.
3.1.2.1	State the importance of computer networks and communications.
3.1.3.1	Define types of networks : LAN, MAN and WAN
3.1.3.2	Differentiate between the three types of computer networks.
3.1.4.1	Define two types of network architecture Client/Server and Peer to Peer
3.1.5.1	State three types of network topology : Bus, Ring, Star.
3.1.5.2	Differentiate between the three types of network topology : bus, ring, star.
3.1.6.1	Define Transmission Control Protocol/Internet Protocol (TCP/IP) as a protocol to facilitate communication over computer network.
3.1.7.1	Describe the types of network communications technology Internet, Intranet and Extranet.

3.2 Hardware Requirements

3.2.1.1	Identify the network communication devices : Network Interface Card (NIC), Wireless Network Interface Card, Modem, Hub/Switch, Router, Wireless Access Point
3.2.1.2	State the functions of the following: Network Interface Card (NIC), Wireless Network Interface Card, Modem, Hub/Switch, Router, Wireless Access Point Transmission Media : Physical and Wireless.
3.2.2.1	Identify various types of cables such as Unshielded Twisted Pair (UTP), Shielded Twisted Pair (STP), Coaxial and Fibre Optic Cable. (Physical Transmission Media)
3.2.2.2	Identify various types of (wireless transmission media) such as infrared, radio wave and satellite.

3.3 Software Requirements

3.3.1.1	Define Network Operating System.
3.3.1.2	Name various Network Operating System : Windows Server 2003, UNIX, Linux
3.3.2.1	State the functions of various client software: web browser, email client, network utilities, network file manager.

4.0 MULTIMEDIA

4.1 Multimedia Concepts

4.1.1.1	Define multimedia.
4.1.2.1	Identify the use of multimedia in various fields.
4.1.3.1	Differentiate between the characteristics of linear and non-linear multimedia.
4.1.4.1	Compare and contrast the mediums of delivery: web-based and CD-based. Discuss the similarities and differences between mediums of delivery.
4.1.5.1	Identify the multimedia elements: text, audio, video, graphics, animation Match multimedia elements with the respective standard file formats.

4.2 Hardware and Software

4.2.1.1	Identify hardware that can be used to produce multimedia products: Scanner, video camera, camera, audio devices, video capture devices
4.2.2.1	Identify editing software that can be used to produce multimedia elements: text editor, graphics and image editor, audio editor, video and animation editor
4.2.3.1	Define the various concepts in authoring tools: time frame, icon and card concept.

4.3 Multimedia Development

4.2.4.1	Describe and give examples of web editors: text-based and WYSIWYG
4.3.1.1	State user interface principles.
4.3.1.2	Apply suitable user interface principles in a project.
4.3.2.1	State the role of each member in a development team (examples: project manager, subject matter expert, instructional designer, graphics artist, audio-video technician and programmer).

4.3.3.1	Describe the phases in multimedia production: analysis, design, implementation, testing, evaluation, publishing
4.3.3.2	Apply all the phases of multimedia production to produce an interactive educational multimedia project.

5.0 PROGRAMMING

5.1 Basic Programming Concepts

5.1.1.1	State the definition of program.
5.1.1.2	State the definition of programming language.
5.1.2.1	Identify the generations of low-level programming languages with examples. First Generation : Machine Language Second Generation : Assembly Language
5.1.2.2	Identify the generations of high-level programming languages with examples. Third Gen: C++, Java, Visual Basic Fourth Gen: SQL, Nomad Fifth Gen: Prolog, Mercury
5.1.3.1	Define structured approach in programming.
5.1.3.2	Define object-oriented approach in programming.
5.1.3.3	Differentiate between structured and object-oriented approach in programming.
5.1.4.1	Describe the translation method: assembler, interpreter and compiler.
5.1.5.1	Differentiate between constants (retain) and variables (can change).
5.1.5.2	Differentiate between the data types: Boolean (logical value – true or false), integer (whole number), double (decimal number), string (text) and date.
5.1.5.3	Differentiate between mathematical, logical and comparison operators.
5.1.5.4	Differentiate between sequence (no if then else statement) and selection control structure (with if then else statement).

5.2 Program Development

5.2.1.1	Describe the five main phases in program development: problem analysis, program design, coding, testing and debugging, documentation
5.2.2.1	Apply program development phases to solve problems.

6.0 INFORMATION SYSTEMS

6.1 Concepts of Information Systems

6.1.1.1	Give the meaning of data, information and information systems.
6.1.2.1	State the usage of Information Systems in education, business and management.
6.1.3.1	List the IS components: Data, Hardware, Software, People and Procedure
6.1.3.2	Define each of the Information System components.
6.1.3.3	Describe the interrelation between information system components using a diagram.
6.1.4.1	List five types of Information Systems: MIS, TPS, DSS, EIS, ES
6.1.4.2	State the usage of each type of information system.
6.1.5.1	Define bit, byte, field(column), record(row), and file/table.
6.1.5.2	State the hierarchy of data: Bit → Byte → Field → Record → File → Database

6.2 Software

6.2.1.1	Define database and Database Management Systems (DBMS).
6.2.1.2	List the benefits of using database.
6.2.2.1	State the relationship between attribute (field), row (record) and relation (file/table).
6.2.2.2	Define the primary key and foreign key.
6.2.2.3	State the importance of the primary key.
6.2.2.4	Differentiate between the primary key and foreign key.
6.2.2.5	State the importance of relationship between the primary key and foreign key.
6.2.3.1	Define the following database objects/ tools: Table, form, query, report.
6.2.3.2	Identify table, query, form and report as database objects/ tools.
6.2.4.1	List the basic operations of data manipulation: Update * Insert * Delete * Retrieve * Sort * Filter * Search
6.2.4.2	State the usage of basic operations in data manipulation.

6.3 Database Development

6.3.1.1	Describe the phases of systems development: Analysis, Design , Implementation, Testing, Documentation, Maintenance
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