

**ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA**

**ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA**

**PART II EXAMINATIONS – MARCH 2022**

**INFORMATION TECHNOLOGY**

**Time Allowed: 3 hours**

**SECTION A: PART I MULTIPLE-CHOICE QUESTIONS (30 Marks)**

**ATTEMPT ALL QUESTIONS IN THIS SECTION**

**Write ONLY the alphabet (A, B, C, D or E) that corresponds to the correct option in each of the following questions/statements**

1. Combination of elements, which are integrated to each other by means of their inputs and outputs is known as
  - A. System
  - B. Management
  - C. Database
  - D. Record
  - E. File
2. A measure of the degree or extent of the dependence of the subsystems on one another is called
  - A. Tight
  - B. Coupling
  - C. Decoupling
  - D. Double
  - E. Twice
3. Which of the following is **NOT** a basic element of control in a business system?
  - A. Planning
  - B. Collecting facts
  - C. Comparison
  - D. Corrective Action
  - E. Leading

4. Which of the following is **NOT** a feature of an information?
- A. It must be detailed
  - B. It must be imprecise
  - C. It must be accurate
  - D. It must be easily understood by the recipients
  - E. It must be timely
5. The smallest unit of data in a Computer System is
- A. Bit
  - B. Byte
  - C. Word
  - D. Nibble
  - E. Character
6. Which of the following is **NOT** a direct input device?
- A. Barcode
  - B. Optical Mark Reader (OMR)
  - C. Optical Character Reader (OCR)
  - D. Touch screen
  - E. Keyboard
7. Which of the following is **NOT** a function that can be performed by a mouse?
- A. Hovering
  - B. Dragging
  - C. Clicking
  - D. Picking
  - E. Selecting
8. Which of the following is **NOT** an advantage of Flat Panel Display?
- A. They are crude
  - B. They are lightweight
  - C. They are compact
  - D. They provide better resolution than CRT
  - E. They are modern

9. Which of the following is **NOT** a classification of printers?
- A. Character Printer
  - B. Plot Printer
  - C. Page Printer
  - D. Ink-Jet Printer
  - E. Line Printer
10. The Keyboard consists of the following keys, **EXCEPT**
- A. Alphabetical Keys
  - B. Numerical Keys
  - C. Control Keys
  - D. Pointing Keys
  - E. Special Character Keys
11. Which of the following is **NOT** the main component of an Operating System?
- A. A supervisor
  - B. A command language translator
  - C. An input/output control system
  - D. A librarian
  - E. An Analyst
12. Another name for User's code is
- A. Object code
  - B. Machine code
  - C. Source code
  - D. Intermediate code
  - E. Binary code
13. A program which converts a user's code written in high level language into a machine code is called
- A. Assembler
  - B. Compiler
  - C. Debugger
  - D. Moduler
  - E. File Manager

14. Which of the following is **NOT** considered when acquiring an application package?
- A. Purchase price of the package
  - B. Type of hardware and Operating System
  - C. After sales maintenance
  - D. Access to user's code
  - E. Technology version of the package
15. Which of the following **CANNOT** be performed by word processing packages?
- A. Text manipulation
  - B. Mail merging
  - C. Spell checking
  - D. Create bar chart
  - E. Create Tables
16. Which of the following is **NOT** a different type of file organisation?
- A. Serial
  - B. Sequential
  - C. Indexed Sequential
  - D. Random
  - E. Spiral
17. Which of the following is **NOT** a type of Computer processing technique?
- A. Batch
  - B. Real time
  - C. Multiprocessing
  - D. Time Sharing
  - E. Distributed time
18. Centralised processing method provides the following, **EXCEPT**
- A. All terminals and other devices are connected to a Server
  - B. Better control over the processing
  - C. More experienced IT staff
  - D. Economics of scale that is cheaper to run
  - E. Departmental secrecy

19. Which of the following is **NOT** a challenge of decentralised processing method?
- A. Less communication cost associated with distribution of information
  - B. Complexity of coordinating data among the departments
  - C. Increase in administrative cost
  - D. Increase in machinery/hardware costs
  - E. Greater difficulty in implementing effective control
20. Which of the following is **NOT** a challenge of network?
- A. Access to databases
  - B. Failure of the server
  - C. Cable break may stop the entire network
  - D. Maintenance cost may be prohibitive
  - E. Need for compatibility of equipment in the network
21. A good password should include
- A. Character alone
  - B. Number alone
  - C. Special character and Number
  - D. Character and Special character
  - E. Character, Number and Special character
22. Which of the following is **NOT** a wireless media?
- A. Bluetooth
  - B. Infrared
  - C. Radiowaves
  - D. Microwaves
  - E. Guided media
23. Which of the following is **NOT** a social media platform?
- A. Facebook
  - B. Instagram
  - C. Whatsapp
  - D. LinkedIn
  - E. Netflix

24. The acronym SMTP means
- A. Simple Message Transfer Protocol
  - B. Special Message Transfer Protocol
  - C. Simple Mail Transfer Protocol
  - D. Special Mail Transfer Protocol
  - E. Soft Message Transfer Protocol
25. PaaS is an acronym for
- A. Parallel as a Site
  - B. Protocol as a Site
  - C. Platform as a Service
  - D. Parallel as a Service
  - E. Platform as a site
26. Who is the right person to write the feasibility study report?
- A. Administrative Officer
  - B. Project Manager
  - C. Programmer
  - D. Data Processing Manager
  - E. System Analyst
27. A detailed document which sets out what the client expects and what is expected of the software system which is being developed is
- A. Feasibility study report
  - B. Executive summary
  - C. System specification
  - D. Evaluation report
  - E. Terms of reference
28. Which of the following is **NOT** a type of feasibility study?
- A. Operational feasibility study
  - B. Evaluation feasibility study
  - C. Economic feasibility study
  - D. Technical feasibility study
  - E. Social feasibility study

29. Expenses associated with the maintenance and administration of a new system is
- A. One-off cost
  - B. Operating cost
  - C. Direct cost
  - D. Fixed cost
  - E. Variable cost
30. A practice in which a company hires another company or an individual to perform tasks, handle operations or provide services that are either usually executed or had previously been done by the company's own employees for a fee is
- A. Hiring
  - B. Servicing
  - C. Managing
  - D. Outsourcing
  - E. Crowdsourcing

**SECTION A: PART II      SHORT-ANSWER QUESTIONS      (20 Marks)**

**ATTEMPT ALL QUESTIONS**

**Write the correct answer that best completes each of the following questions/statements**

1. Recorded facts and events about activities occurring in an environment is called .....
2. A combination or collection of people, hardware, software, communication networks and data resources that collect, transform and provide information to managers at all levels in all functions to allow timely and effective decision making in an organisation is known as .....
3. The technology used in the 2<sup>nd</sup> generation computers is .....
4. The Processor is the combination of ALU and .....

5. A small and very fast computer memory designed to speed up the transfer of data and instructions to a processor and stores frequently used computer programs, applications and data is called .....
6. A physical electronic card that has an embedded integrated chip that acts as a security token and it's used to control access to a resource is known as .....
7. There are two types of editors, namely text editor and .....
8. A software that builds, manages and allow easy storage and retrieval of data is called .....
9. In program flowchart symbols, the rectangle shaped box depicts .....
10. A technology that allows two or more users in different locations to negotiate business deals by using computer networks to transmit audio and video data is known as .....
11. The time interval between the moment the command is given to transfer data from disk to main storage and the moment the transfer is completed is known as .....
12. The frequency with which records are added or deleted from a file is called .....
13. The third layer of OSI model is known as .....
14. The process of extracting or getting information, files and documents from the internet for use is called .....
15. A network security system designed to prevent unauthorised access to or from a private network based on predetermined security rules is called .....
16. The act in which someone works for an organisation from home and communicates with the main office and customers by phone, computer and email is known as .....
17. A network that operates in a confined geographical area usually within a kilometer is called .....
18. A network ..... is the arrangement with which Computer systems or network devices are connected to each other.



19. A standard network protocol used for the transfer of Computer files between a client and server on a Computer network is called .....
20. The practice of fitting the setup of the computer and the workspace to fit the users and the user's work needs in order to minimise physical stress on the computer users is known as .....

**SECTION B:                      ATTEMPT ANY FOUR QUESTIONS                      (50 Marks)**

**QUESTION 1**

- a. What is an Information System? **(2 Marks)**
- b. Describe **THREE** types of Decision Structures that exists in an organization **(7½ Marks)**
- c. State **THREE** features of fifth generation computers **(3 Marks)**

**(Total 12½ Marks)**

**QUESTION 2**

- a. Define
- i. Direct Input device **(2 Marks)**
- ii. Indirect Input device **(2 Marks)**
- b. List **FIVE** examples of an input device **(2½ Marks)**
- c. State **TWO** benefits of Display equipment **(2 Marks)**
- d. State **FOUR** challenges of Display equipment **(4 Marks)**

**(Total 12½ Marks)**

**QUESTION 3**

- a. Define Operating System **(1½ Marks)**
- b. State **FIVE** basic functions of an Operating System **(5 Marks)**
- c. State **THREE** examples of Operating Systems **(3 Marks)**
- d. State **THREE** advantages of Interpreters over Compilers **(3 Marks)**

**(Total 12½ Marks)**

#### QUESTION 4

- ai. What is Batch processing? (2½ Marks)
- aii. State **TWO** other processing techniques (2 Marks)
- b. State **FOUR** advantages of Batch processing (4 Marks)
- c. State **FOUR** disadvantages of Batch processing (4 Marks)

(Total 12½ Marks)

#### QUESTION 5

- a. What is a Computer network? (2½ Marks)
- b. Briefly describe each of the following
  - i. Hub/Switch (2 Marks)
  - ii. Bridges (2 Marks)
  - iii. Routers (2 Marks)
  - iv. Gateway (2 Marks)
  - v. Repeaters (2 Marks)

(Total 12½ Marks)

#### QUESTION 6

- a. What is prototyping? (2½ Marks)
- b. Enumerate **TWO** benefits of prototyping (2 Marks)
- c. Enumerate **THREE** challenges of prototyping (3 Marks)
- d. State **FIVE** reasons for computer forensics (5 Marks)

(Total 12½ Marks)

## **SOLUTION TO QUESTIONS**

### **MULTIPLE CHOICE QUESTIONS (MCQ)**

1. A
2. B
3. E
4. B
5. A
6. A
7. D
8. A
9. B
10. D
11. E
12. C
13. B
14. D
15. D
16. E
17. E
18. E
19. A
20. A
21. E
22. E
23. E
24. C
25. C
26. E
27. A
28. B
29. B
30. D

## **SHORT ANSWER QUESTIONS**

1. Data
2. Information system (IS)/ Management Information System (MIS)
3. Transistor
4. Control Unit (CU)
5. Cache memory
6. Smart card
7. Linkage editor
8. Database Management System (DBMS)
9. Process symbol
10. Video conferencing
11. Access time or response time
12. Volatility
13. Network layer
14. Downloading
15. Firewall
16. Telecommuting
17. Local Area Network (LAN)
18. Topology
19. File Transfer Protocol (FTP)
20. Ergonomics

## **SECTION B**

### **QUESTION 1**

- a. **Information System** is a combination or collection of people, hardware, software, communication networks and data resources that collect, transform and provide information to managers at all levels in all functions to allow timely and effective decision making in an organisation.
- b. **Types of Decision Structures that exists in an organization are:**
- i. **Highly Structured Decisions:** They are repetitive routine and understood well enough that they can be delegated to lower level employees and infact such decisions can be automated. For example, the decision to grant credit to established customers requires the following:
    - Personal Identification Number (PIN)
    - Customer credit limit; and
    - Current balance
  - ii. **Semi-Structured Decisions** are characterized by incomplete rules for making the decision. There is need for subjective assessment and judgements to supplement formal data analysis. Such decisions can be made using Computer Based Decision Aids such as Neural systems, Decision Support Systems (DSS), Executive Support System (ESS) etc. For example, setting a marketing budget for a new product requires:
    - The marketing status of the other products
    - The level of advertisement and
    - Other subjective decisions
  - iii. **Unstructured Decisions** are non-recurring and non-routine. Examples include:
    - Choosing a cover for a magazine
    - Hiring senior management staff
    - The choice of basic research project to undertake

In this case, no framework or model exists to solve such problems. Instead, they require considerable judgement and intuition. Nevertheless, they can be supported by Computer Based Decision aids that facilitate gathering information from diverse sources.

**c. Features of fifth generation computers are:**

1. Use of ULSI (Ultra Large Scale Integration) technology
2. It consume less power and generate less heat
3. Development of artificial intelligence
4. Speed: remarkable improvement of speed, accuracy and reliability
5. Development of Natural language processing
6. Advancement in Parallel Processing
7. Advancement in Superconductor technology
8. More user-friendly interfaces with multimedia features
9. Availability of very powerful and compact computers at cheaper prices
10. Ruggedness and very reliable
11. Voice and touch sensitive input and voice output – Voice Recognition
12. Intelligent capabilities as evidenced in electronic system.
13. Robotics
14. Neural Network
15. Expert Systems
16. Less costly
17. Portable
18. Smaller in size
19. User friendly
20. Generate less heat
21. High response
22. More reliable.

**QUESTION 2**

**ai. DIRECT INPUT DEVICES:**

These are **devices** that read data from a source that is provided and transfer it directly to the computer system. The devices interface with computer system without intermediary device, that is, they accept data in machine readable form. It requires less human interaction in order to get data into the computer. They can also be called Direct Data Entry (DDE)

**ii. INDIRECT INPUT DEVICES:**

These are the devices that can send data into the computer for processing through intermediary devices. It requires human interaction with the device in order to get or send data into the computer.

**b. Examples of input devices include:**

- i. Keyboard
- ii. Mouse
- iii. Touch screen
- iv. Tracker ball
- v. Joy stick
- vi. Graphic Tablet
- vii. Scanner
- viii. Digital camera
- ix. Microphone
- x. Video digitizer
- xi. Light pen
- xii. Webcam
- xiii. Magnetic Stripe Reader
- xiv. Chi and PIN Reader
- xv. Bar code Reader
- xvi. Optical Mark Reader
- xvii. Optical Character Reader
- xviii. Magnetic Ink Character Recognition
- xix. Card Reader
- xx. Harddrive/disk/diskette/tape/flashdrive

**c. A display equipment is also known as monitor or visual display unit**

**Benefits of display equipment include:**

- i. It gives easy access to vast amount of data
- ii. It does not encourage paper wastage
- iii. It allows users to see what they have typed in and how the system is responding
- iv. It produces very bright images
- v. It produces soft copy

**d. Challenges of display equipment:**

- i. Computer output cannot be removed from the screen
- ii. One cannot output with a pencil or pen
- iii. One must be physically present at the display screen site to see the output it provides
- iv. The amount of output that can be handled will depend on the size of the screen
- v. Radiation from display equipment can cause health hazard to the user such as eye problem, fatigue, burning sensation and headache.

### **QUESTION 3**

#### **a. OPERATING SYSTEM (OS)**

This is a program that acts as an interface between the user and the hardware and allows the user to run other application packages. It provides the users with features that make it easier for him or her to code, test, execute, debug and maintain his or her programs while efficiently managing the hardware. It offers the ease of users of the hardware with minimum human intervention.

Operating system must be resident in the main memory prior to the commencement of any processing operation. It manages the computer resources, application programs and the computer network in the best possible way.

#### **b. FUNCTIONS OF OPERATING SYSTEMS**

- (1) Control of communications between the computer system and operator, other computer systems within the network
- (2) Keeping operation log of all the processing activities
- (3) Control of application software which are online
- (4) Control of multi programming
- (5) Allocating memory and loading programs
- (6) Job scheduling and loading in a multi programming environment
- (7) Control of peripheral devices
- (8) Error correction and reporting
- (9) Resource sharing
- (10) It controls the input and output of data between the computer (CPU) and the peripheral input and output devices (like keyboard and monitor)
- (11) It connects the application software to the hardware, making it possible for the user to use the application software to control the hardware to process jobs.
- (12) It allows the application software to operate in the computer.
- (13) It tests the main components of the computer whenever it is powered on. This is the post operation or power on self-test.
- (14) It prepares the main memory for the loading of application programs. This process is known as booting the computer.



**c. Examples of operating system include:**

- i. WINDOWS 95, 98, 2000, XP, 7, 8
- ii. Window Vista
- iii. UNIX
- iv. Apple Mac OS (Formerly OS X)
- v. Chrome OS
- vi. Google Android OS
- vii. XENIX
- viii. Novell's Netware
- ix. OS/2
- x. WINDOW NT

**d. Advantages of interpreter over compiler include:**

- i. It is faster and easier to use
- ii. Less Random Access Memory space is required than compiler hence it is memory efficient
- iii. It stops the compilation if any error occurs therefore debugging is easier
- iv. It produces superior messages that are very easy to trace
- v. It is useful for small program writing
- vi. It is very cheap
- vii. It is suitable for interactive work which can allow programmer to test program online in segment

## **QUESTION 4**

### **ai. BATCH PROCESSING:**

This is a processing technique by which items to be processed must be coded and collected into groups or batches prior to processing. A batch consists of a convenient number of records or a collection of records relating to a given period e.g. daily, weekly, and monthly and so on or after a specified number is attained to justify updating of a master file. The result of processing a particular item of data will not be known until the result of the batches is known. Batch processing is suitable for accounting and business applications such as payroll accounts, stock control, invoicing, and purchases e.t.c. in which master files are updated with new transactions periodically and output is produced according to predetermined processing cycle.

### **aii. Other processing techniques include:**

- i. Centralised processing
- ii. Decentralised processing
- iii. Distributed processing
- iv. Online processing
- v. Remote job entry (RJE)
- vi. Real time processing
- vii. Time sharing or interactive processing
- viii. Multi processing
- ix. Multi tasking
- x. Multi programming

### **b. ADVANTAGES OF BATCH PROCESSING**

- i. It is efficient
- ii. It is cost effective
- iii. It is good for companies that will not require immediate result for further processing
- iv. The output can be identified through the batch number
- v. Processing can be carried out very fast without user interactions
- vi. Processing can be done off line
- vii. Proper documentation of transaction data can be done easily
- viii. Independent review can be carried out
- ix. System breakdown will have less impact on processing
- x. Specific time can be scheduled for processing

### **c. DISADVANTAGES OF BATCH PROCESSING**

- i. Due to the gap between data capture and information generation renders this mode of processing unacceptable in organization that requires immediate result or information to influence other operations or decisions.
- ii. Errors detected after batch processing may take some additional time to correct.
- iii. Debugging may be problematic
- iv. It is not suitable for organization that will require immediate result for further action
- v. It requires some degree of delay
- vi. Data processing staff may be working under pressure due to accumulation of data

## **QUESTION 5**

### **a. COMPUTER NETWORK**

A computer network is defined as the interconnection of many computer systems with data communication devices in order to share resources such as hardware and software. Networking reduces duplication of computer resources thus enabling the scarce resources to be shared among the computer systems. Therefore it allows the sharing of files, applications, software products, printers, disk space, modem, faxes, CD-ROM drives and e-mail facilities.

### **b. Hub/Switch:**

- i. A network hub is a common connection point for devices in a network. Hubs are devices commonly used to connect segments of a LAN. The hub contains multiple ports. When a packet arrives at one port, it is copied to the other ports so that all segments of the LAN can see all packets. It is a device that broadcast any signal or communication that enters it to all devices on the network.

### **ii. Bridge:**

It is a device for connecting LANs (Local Area Networks) with similar logical topologies so that they form a single logical network. It allows the segmentation of a large network into a smaller and more efficient network. It connects two networks such as LAN to the internet or WAN (Wide Area Network)

### iii. Router:

It is a network device for connecting two or more networks of LAN (Local Area Network), it routes or transfers data packets across the LANs or MANs in a Wide Area Network or internet. It sends any signal that enters it to the next available router or system on the network.

### iv. Gateway:

It is a device for connecting two networks with dis-similar protocol together so that they can communicate with each other. It converts protocols from one computer network to protocols used in the other network.

### v. Repeater:

It is a device for connecting different LANs (Local Area Networks), it regenerates, amplifies, empowers or recreate and cleans corrupted digital signals and forward them to their destination computers without data loss.

## QUESTION 6

### a. PROTOTYPING

**Prototyping** is an approach to develop a small or pilot version of a system called a prototype of an entire system or a part of it. It is an act of using 4<sup>th</sup> generation language (4th) development tool to quickly produce a simulation of the output required from a proposed or completed system.

### b. BENEFITS OF PROTOTYPING

- i. Early visibility of the **prototype** gives users an idea of what the final system looks like
- ii. Encourages active participation among users and producer
- iii. Enables a higher output for user
- iv. Cost effective (Development costs reduced)
- v. Increases system development speed
- vi. Assists to identify any problems with the efficacy of earlier design, requirements analysis and coding activities
- vii. Helps to refine the potential risks associated with the delivery of the system being developed
- viii. Various aspects can be tested and quicker feedback can be got

from the user

- ix. Helps to deliver the product in quality easily
- x. User interaction is available during development cycle of prototype

### **c. CHALLENGES OF PROTOTYPING**

- i. Producer might produce a system inadequate for overall organization needs
- ii. User can get too involved whereas the program cannot be to a high standard
- iii. Structure of system can be damaged since many changes could be made
- iv. Producer might get too attached to it (might cause legal involvement)
- v. Not suitable for large applications
- vi. Over long periods, can cause loss in consumer interest and subsequent cancellation due to a lack of market for the product (for commercial products)

### **d. REASONS FOR COMPUTER FORENSIC EVIDENCE OR INVESTIGATION**

There is wide range of computer misuses or crimes that can be committed that will require forensic evidence, some of which are:

- i. In legal cases, computer forensic techniques are frequently used to analyse computer systems belonging to defendants (in criminal cases) or litigants (in civil cases)
- ii. To recover data in the event of hardware or software failures
- iii. To analyse a computer after a break-in e.g to determine how the attackers gain access and what the attackers did
- iv. To gather evidence against an employee that an organisation wishes to terminate
- v. To gain information about how computer systems work for the purpose of debugging, performance optimisation and so on.