



UNIT TEST 02

2027 A/L ICT

STUDENT ID

NAME

DATE

Become a Tech-Savvy Entrepreneur

PART I

1. The main reason vacuum tubes were replaced in later generations was:
 - A) They were too cheap
 - B) They produced excessive heat and were unreliable
 - C) They could not process binary numbers
 - D) They supported only assembly language
 - E) They required no electricity
2. Which of the following combinations correctly matches **computer and inventor** in the first generation?
 - A) ENIAC – Howard Aiken
 - B) EDSAC – Maurice Wilkes
 - C) EDVAC – John von Neumann
 - D) UNIVAC – Jack Kilby
 - E) IBM 650 – Ada Lovelace
3. The programming style of first-generation computers restricted them to:
 - A) Object-oriented programs
 - B) High-level languages
 - C) Machine-level binary code
 - D) Compiler-based translation
 - E) Multiprogramming systems
4. Which device combination best represents the **I/O technology** of first generation computers?
 - A) Monitors and Keyboards
 - B) Optical Disks and SSDs
 - C) Punch Cards, Paper Tape, Magnetic Tape
 - D) Touch Screens and Hard Disks
 - E) Magnetic Core and Mouse
5. ENIAC's major historical contribution was that it was the first:
 - A) Stored-program computer
 - B) Electronic digital computer
 - C) PC-based machine
 - D) Internet-connected machine
 - E) Time-sharing system
6. Which factor made second-generation computers significantly more efficient than the first?
 - A) Better cooling fans
 - B) Use of Transistors
 - C) Use of Assembly-only languages
 - D) Introduction of SSDs
 - E) Cloud processing
7. Which statement is **FALSE** about second-generation computers?
 - A) They consumed less power than the first generation
 - B) They were faster than the first generation
 - C) They were smaller in size than the first generation

- D) They used VLSI chips
E) They supported both assembly and machine languages
8. The use of **magnetic core memory** in second generation computers primarily helped in:
A) Increasing power consumption
B) Reducing speed
C) Faster and reliable memory access
D) Handling voice data
E) Replacing storage disks
9. Which one among the following was NOT a second-generation computer?
A) IBM 1620
B) CDC 1604
C) IBM 7030
D) UNIVAC 1108
E) Apple II
10. Which language was FIRST implemented widely in second-generation systems?
A) Java
B) COBOL
C) Python
D) Pascal
E) HTML
11. The **main hardware innovation** that distinguished third generation was:
A) Vacuum tubes
B) Transistors
C) Integrated Circuits
D) Optical Disks
E) Cloud chips
12. ICs allowed third generation computers to:
A) Expand size
B) Generate more heat
C) Increase speed and reliability
D) Use only assembly code
E) Reduce programming languages
13. The third generation also introduced which important **OS features**?
A) Only batch processing
B) Time-sharing and multiprogramming
C) Internet browsing
D) Voice interfaces
E) Mobile platforms
14. Which machine belonged to the third generation?
A) IBM 370/168
B) ENIAC
C) IBM 1620
D) Apple II
E) MARK I
15. Which high-level languages were mostly used in third-generation computers?
A) FORTRAN II-IV, BASIC, ALGOL-68
B) Java and Python

- C) HTML and PHP
- D) Assembly only
- E) None

16. Which development gave rise to **Personal Computers (PCs)**?

- A) Vacuum Tubes
- B) Transistors
- C) VLSI circuits
- D) Punch Cards
- E) Assembly coding

17. The first appearance of **Internet concept** occurred during:

- A) First generation
- B) Second generation
- C) Third generation
- D) Fourth generation
- E) Fifth generation

18. Which feature did NOT belong to fourth generation computers?

- A) Very small size
- B) No AC required
- C) Supercomputers like CRAY-1
- D) Parallel cloud computing
- E) Portable and reliable

19. Which of the following computers was part of fourth generation?

- A) IBM-360
- B) CRAY-X-MP
- C) ENIAC
- D) IBM 1620
- E) Jacquard Loom

20. The **main programming languages** popularized in fourth generation were:

- A) C and C++
- B) Assembly only
- C) Python and Java
- D) HTML and JavaScript
- E) ALGOL and BASIC only

21. The hallmark of fifth generation is:

- A) ICs
- B) Transistors
- C) Robotics and AI
- D) Punch Card Systems
- E) Mechanical Relays

22. Which hardware technology is dominant in fifth-generation machines?

- A) VLSI
- B) ULSI
- C) Vacuum tubes
- D) Transistors
- E) IC

23. Which of the following is NOT a fifth-generation device?

- A) Laptop

- B) Ultrabook
- C) Notebook
- D) Apple II
- E) Chromebook

24. Fifth generation development emphasizes:

- A) Object-Oriented Programming
- B) Artificial Intelligence
- C) Only assembly languages
- D) Sole batch processing
- E) No multimedia support

25. Which statement about fifth generation is INCORRECT?

- A) ULSI chips are used
- B) Natural Language Processing is researched
- C) Parallel Processing exists
- D) Computers are huge and power-hungry
- E) Robotics is applied

26. Who invented the **Analytical Engine** that laid the foundation for modern computers?

- A) Charles Babbage
- B) Howard Aiken
- C) Ada Lovelace
- D) John von Neumann
- E) Maurice Wilkes

27. The world's **first programmer** was:

- A) Blaise Pascal
- B) Ada Lovelace
- C) Joseph Jacquard
- D) Jack Kilby
- E) Howard Aiken

28. Who improved Pascal's machine to perform multiplication and division?

- A) Charles Babbage
- B) Leibnitz
- C) Howard Aiken
- D) Maurice Wilkes
- E) John Mauchly

29. Joseph Jacquard's loom was important because it:

- A) Used vacuum tubes
- B) Introduced punch card control
- C) Was the first PC
- D) Worked on electricity
- E) Used VLSI chips

30. The MARK I computer was developed by Howard Aiken with:

- A) IBM
- B) Apple
- C) Microsoft
- D) Google
- E) NASA

31. In the fetch–execute cycle, which register is first loaded with the address of the instruction to be fetched?
- A) CIR
 - B) MAR
 - C) MDR
 - D) IR
 - E) AC
32. The role of the **Program Counter (PC)** during the fetch stage is to:
- A) Store the result of ALU operations
 - B) Hold the current instruction being executed
 - C) Provide the address of the next instruction to be fetched
 - D) Store temporary arithmetic results
 - E) Decode the instruction
33. Which of the following pairs is correctly matched?
- A) MAR – holds the instruction currently being executed
 - B) CIR – holds the intermediate arithmetic results
 - C) MDR – holds the data being transferred to/from memory
 - D) PC – stores arithmetic and logical results
 - E) AC – stores the next instruction address
34. During the decode stage, which unit is primarily responsible for interpreting the instruction?
- A) ALU
 - B) CU
 - C) MDR
 - D) MAR
 - E) PC
35. If the Control Unit sends signals to the ALU during the execute stage, it means:
- A) An instruction fetch is taking place
 - B) An arithmetic/logic operation is about to be carried out
 - C) A program counter reset is required
 - D) An interrupt has occurred
 - E) Data is being written into memory
36. Which register contains the **instruction currently being decoded/executed**?
- A) MAR
 - B) MDR
 - C) CIR
 - D) PC
 - E) AC
37. Which bus carries only the memory location, not the actual data?
- A) Data Bus
 - B) Control Bus
 - C) Address Bus
 - D) Register Bus
 - E) Memory Bus
38. Which statement about buses is FALSE?
- A) Data Bus carries binary data between CPU and memory
 - B) Address Bus carries memory locations only
 - C) Control Bus carries signals such as read/write
 - D) Control Bus is unidirectional
 - E) Data Bus can be 32-bit or 64-bit wide

39. The accumulator (AC) is mainly used to:
- Hold the memory address of data
 - Store intermediate results of arithmetic/logic operations
 - Store the next instruction address
 - Decode instructions
 - Fetch instructions from memory
40. Which of the following sequences correctly represents the **fetch–decode–execute cycle**?
- MAR → AC → ALU → MDR
 - PC → MAR → MDR → CIR → CU → ALU
 - CU → MDR → PC → CIR → ALU
 - AC → MDR → CU → CIR → PC
 - MAR → PC → CIR → MDR → ALU

PART II

1) (a) Your school is running an ICT awareness fair. Students must match each **real-life situation (Side A)** with the correct **Internet service or digital concept (Side B)**.

Side A (Situations):

- A student sends a 500MB video project to a friend in another city.
- A company signs e-contracts that cannot be forged or modified.
- Two classes from Sri Lanka and the UK meet virtually with live video.
- A research student copies Wikipedia paragraphs into his report without credit.
- A website distributes pirated versions of popular games.
- An IT officer logs into the office server remotely from home.
- A teenager browses multiple online stores to compare laptop prices.
- Friends chat in real time with text in a shared online discussion room.
- A customer calls family abroad using Internet telephony instead of landline.
- An employee illegally uploads a movie to YouTube without permission.

Side B

- Video Conferencing
- Piracy
- File Transfer (FTP)
- Digital Signature
- Telnet
- IP Telephony
- Plagiarism
- Illegal File Sharing
- World Wide Web (WWW)
- Internet Relay Chat (IRC)

(b) A Sri Lankan **software company** is training new interns on Internet services and cyber ethics. The trainer has given incomplete notes. Fill in the blanks with the correct answers from the list.

- Customers shop online by accessing pages through the _____.
- Designers send updated product catalogs to headquarters using _____.
- Instead of letters, the marketing team communicates instantly using _____.
- The board of directors meets clients abroad through _____.
- To ensure authenticity of invoices, the company attaches a _____.
- When pirated CDs of their software appear in street markets, that is _____.
- A staff member copy-pasting an article into a report without citation is committing _____.
- A system administrator controls the office server remotely through _____.
- Customers make international calls via the Internet using _____.
- Developers working remotely hold group text chats on a platform similar to _____.

[IP Telephone, Internet Relay Chat (IRC), World Wide Web (WWW), FTP, Piracy, Plagiarism, Email, Video Conferencing, Digital Signature, Telnet,]

2) Fill in the blanks with the most appropriate term from the given content. Each blank carries equal marks.

1. Computers of the first generation (1940–1956) used _____ as their basic component for memory and circuitry.
2. The programming language supported in the first generation was limited to _____.
3. The first full-size stored program computer, _____, was developed by Maurice Wilkes in 1947.
4. _____ (1946) was the first electronic digital computer, designed by John Mauchly and J. Presper Eckert.
5. In the second generation, _____ replaced vacuum tubes, making computers smaller, faster, and more reliable.
6. Two major high-level programming languages of the second generation were _____ and _____.
7. _____ was invented by Jack Kilby, and it became the foundation for third-generation computers.
8. The _____ series by IBM was one of the most famous computers of the third generation.
9. The introduction of _____ technology in the fourth generation allowed microcomputers to emerge.
10. The _____ and _____ were among the most popular supercomputers of the fourth generation.
11. The _____, introduced by IBM, triggered the personal computer revolution during the fourth generation.
12. In the fifth generation, _____ technology evolved into ULSI (Ultra Large Scale Integration).
13. Fifth generation computers rely heavily on _____ processing hardware and _____ software.
14. _____ is regarded as the "Father of Computing" for designing the Analytical Engine, based on the concept of input, process, output, and store.
15. _____ is remembered as the first programmer in history for writing algorithms for the Analytical Engine.

3) Fill in the blanks.

1. When a student types a line of code in Python and presses **Run**, the CPU first uses the _____ to fetch the instruction address from memory before execution begins.
2. In a bank ATM system, the CPU retrieves the location of the customer's account balance from memory. The location is held temporarily inside the _____ register.
3. A video game console needs to perform multiple **add and subtract** operations quickly when calculating a character's position. These calculations are handled by the _____ inside the CPU.
4. While editing a photo, the CPU temporarily stores intermediate brightness adjustment values in the _____ register before producing the final image.
5. During online shopping checkout, the system fetches the instruction "Verify Payment" from memory. This fetched instruction is placed into the _____ register for decoding.
6. A self-driving car CPU needs to keep track of the current instruction being executed in real time. This is managed by the _____ register.
7. In a hospital management system, the CPU must quickly transfer a patient's test results from memory to the CPU. The actual result values travel along the _____ bus.

8. While accessing a document stored in RAM, the _____ bus sends the exact location of the document so the CPU can fetch it.
9. A smartphone CPU sends signals like **read, write, or interrupt** to internal hardware components through the _____ bus.
10. A university exam software ensures the “Next Question” instruction is always ready by holding its memory location inside the _____ register.
11. In a voice assistant device, once a command like “Play Music” is fetched, it is stored in the _____ register before being decoded.
12. A multiplayer online game keeps track of the current running instruction for synchronizing player moves. This is done by the _____.
13. While transferring a file from USB storage to RAM, the CPU receives the actual data through the _____.
14. In an e-commerce platform, when calculating the discount percentage, the intermediate subtraction and multiplication results are kept in the _____.
15. During a power failure recovery system, the CPU continuously sends **status signals** to devices, which are carried through the _____ bus.

4) Choose the correct answer for the following.

1. In the **fetch stage**, the _____ holds the address of the next instruction. [*Program Counter (PC), Accumulator*]
2. The CPU sends this address to the main memory through the _____ bus. [*Address Bus, Data Bus*]
3. The instruction fetched from memory is first placed in the _____ before moving to the Instruction Register. [*Memory Data Register (MDR), Arithmetic Logic Unit (ALU)*]
4. During fetch, after copying the instruction into the IR, the _____ is incremented to point to the next instruction. [*Program Counter (PC), Control Bus*]
5. In the **decode stage**, the Control Unit splits the instruction into two parts: the _____ and the operand. [*Opcode, Accumulator*]
6. The _____ specifies what action to perform, while the operand specifies the data or memory location. [*Opcode, Program Counter*]
7. In the **execute stage**, if it's a calculation, the _____ performs the operation. [*Arithmetic Logic Unit (ALU), Memory Data Register (MDR)*]
8. The result of execution is often stored in the _____ register or back into memory. [*Accumulator (AC), Program Counter (PC)*]
9. The fetch–decode–execute cycle repeats itself _____ of times per second. [*Millions, Once*]
10. The three stages of the CPU instruction cycle are _____, _____, and _____. [*Fetch, Decode, Execute, Input, Process, Output*]