

- (5) GPU Register
7. In a scenario where a computer needs to quickly retrieve frequently used data for computational tasks, which memory type is designed to provide rapid access to the CPU?
- (1) Cache
 - (2) RAM
 - (3) ROM
 - (4) Virtual Memory
 - (5) Magnetic Tape
8. Imagine a situation where a computer system needs to store the BIOS firmware permanently. Which memory type is ideal for this purpose?
- (1) Cache
 - (2) RAM
 - (3) ROM
 - (4) Flash Memory
 - (5) Magnetic Disk
9. During the boot-up process of a computer, which register in the CPU plays a crucial role in storing the memory address of the next instruction to be fetched from the BIOS?
- (1) Program Counter
 - (2) Instruction Register
 - (3) Memory Address Register
 - (4) Memory Buffer Register
 - (5) Stack Pointer
10. In a real-world scenario where a computer is executing a complex scientific simulation, which component of the Von Neumann architecture is likely to store intermediate results and operands during computation?
- (1) Cache
 - (2) RAM
 - (3) ROM
 - (4) Secondary Storage
 - (5) Floating Point Register
11. Consider a scenario where a computer is running multiple applications simultaneously, and the operating system needs to keep track of the execution context of each application. Which register is responsible for storing the address of the current instruction being executed?
- (1) Program Counter
 - (2) Instruction Register
 - (3) Memory Address Register
 - (4) Accumulator Register
 - (5) Stack Pointer
12. In a situation where a computer needs to quickly retrieve recently accessed data to improve overall system performance, which memory component is specifically designed to store frequently used instructions and data?
- (1) Cache
 - (2) RAM
 - (3) ROM
 - (4) Virtual Memory
 - (5) Magnetic Disk
13. Imagine a computer system that requires long-term storage of critical system files, such as the operating system kernel. Which memory type is suitable for storing this type of information?
- (1) Cache
 - (2) RAM
 - (3) ROM

- (4) Hard Disk Drive
 - (5) Flash Memory
- 14.** During the execution of a program that involves repetitive loops, which register in the CPU is responsible for holding the memory address of the next instruction to be fetched after the loop iteration?
- (1) Program Counter
 - (2) Instruction Register
 - (3) Memory Address Register
 - (4) Index Register
 - (5) Stack Pointer
- 15.** In modern agriculture, what technology is commonly used to monitor and control environmental factors in a greenhouse, ensuring optimal conditions for plant growth?
- (1) Radio Frequency Identification (RFID)
 - (2) Robotic Machines
 - (3) Greenhouse Automation System
 - (4) Precision Farming Drones
 - (5) Sensor Networks
- 16.** Within the field of medicine, which advanced imaging technology is widely employed to provide detailed cross-sectional images of the human body, assisting in the diagnosis of various medical conditions?
- (1) CT Scan
 - (2) Telemedicine
 - (3) Robotic Surgery
 - (4) RFID Technology
 - (5) Echocardiography
- 17.** In the context of education, what technology facilitates immersive learning experiences by creating simulated environments, allowing students to interact with virtual objects and scenarios?
- (1) E-Learning Platforms
 - (2) Distance Learning Tools
 - (3) Simulation Technology
 - (4) Augmented Reality (AR)
 - (5) Prototyping Software
- 18.** Consider the business sector, where financial transactions are increasingly conducted online. What technology enables users to seamlessly exchange currencies and monitor real-time exchange rates?
- (1) Stock Tracking App
 - (2) Cryptocurrency
 - (3) Mobile Payment Systems
 - (4) Blockchain Technology
 - (5) Currency Exchange Apps
- 19.** In agriculture, what technological innovation involves the use of unmanned aerial vehicles equipped with sensors and cameras to collect data on crop health and monitor field conditions?
- (1) RFID Technology
 - (2) Precision Farming Drones
 - (3) Greenhouse Automation System
 - (4) Robotic Machines
 - (5) Sensor Networks
- 20.** Within the realm of medicine, which technology allows healthcare professionals to remotely diagnose and treat patients, bridging the gap between doctors and individuals in remote locations?
- (1) Telemedicine
 - (2) CT Scan
 - (3) Robotic Surgery
 - (4) Echocardiography

- (5) Mobile Health Apps
- 21.** In the field of education, what technology involves the use of electronic devices and the internet to deliver educational content to students who are not physically present in a traditional classroom setting?
- (1) Simulation Technology
 - (2) Prototyping Software
 - (3) E-Learning Platforms
 - (4) Distance Learning Tools
 - (5) Augmented Reality (AR)
- 22.** For businesses engaged in stock market activities, which technology is instrumental in providing real-time information about market trends, stock prices, and financial news?
- (1) Cryptocurrency
 - (2) Blockchain Technology
 - (3) Stock Tracking App
 - (4) Mobile Payment Systems
 - (5) Currency Exchange Apps
- 23.** In agriculture, what technology involves the use of automated machines to perform tasks such as planting, harvesting, and monitoring crops, enhancing efficiency and precision?
- (1) Robotic Machines
 - (2) Precision Farming Drones
 - (3) Greenhouse Automation System
 - (4) RFID Technology
 - (5) Sensor Networks
- 24.** Within the business sector, what technology is known for its decentralized and secure nature, providing a transparent ledger for recording financial transactions?
- (1) Mobile Payment Systems
 - (2) Cryptocurrency
 - (3) Blockchain Technology
 - (4) Stock Tracking App
 - (5) Currency Exchange Apps
- 25.** During the first generation of computers, which input device was commonly used for data entry, where operators had to feed punched cards containing program instructions and data?
- (1) Magnetic Tape
 - (2) Punch Card Reader
 - (3) Magnetic Disk
 - (4) Keyboard
 - (5) Optical Character Recognition (OCR)
- 26.** In the second generation of computers, the introduction of which technology marked a significant improvement in data storage and retrieval, enabling faster access to information and supporting the development of early operating systems?
- (1) Vacuum Tubes
 - (2) Transistors
 - (3) Magnetic Core Memory
 - (4) Integrated Circuits
 - (5) Magnetic Tape
- 27.** Consider the third generation of computers, where the transition from batch processing to time-sharing systems occurred. What operating system, developed during this era, allowed multiple users to interact with the computer simultaneously?
- (1) MS-DOS
 - (2) UNIX
 - (3) CP/M
 - (4) Windows 3.1

- (5) Macintosh System Software
- 28.** During the fourth generation of computers, which innovation revolutionized the storage of data by allowing information to be stored and retrieved using electronic circuits, leading to the development of modern solid-state drives?
- (1) Magnetic Disk
 - (2) Optical Storage
 - (3) Floppy Disk
 - (4) Flash Memory
 - (5) Hard Disk Drive
- 29.** In the first generation, which type of programming languages were primarily used, where machine language and assembly language were prevalent, and programming required a deep understanding of the hardware architecture?
- (1) High-Level Languages
 - (2) Assembly Languages
 - (3) Procedural Languages
 - (4) Object-Oriented Languages
 - (5) Scripting Languages
- 30.** During the second generation of computers, which output device was commonly used for printing results, where a chain of characters struck an inked ribbon to create printed documents?
- (1) Line Printer
 - (2) Dot Matrix Printer
 - (3) Laser Printer
 - (4) Inkjet Printer
 - (5) Thermal Printer
- 31.** In the third generation of computers, which innovation allowed for the creation of microprocessors, combining the CPU and other components on a single chip, leading to the development of personal computers?
- (1) Transistors
 - (2) Integrated Circuits
 - (3) Vacuum Tubes
 - (4) Microcontrollers
 - (5) Magnetic Core Memory
- 32.** During the fourth generation, the development of which technology allowed computers to be interconnected, facilitating the sharing of resources and information across networks?
- (1) USB
 - (2) Ethernet
 - (3) Wi-Fi
 - (4) Bluetooth
 - (5) Infrared Communication
- 33.** In the history of computing, which operating system, introduced during the third generation, gained popularity in personal computing and played a crucial role in the development of graphical user interfaces?
- (1) MS-DOS
 - (2) UNIX
 - (3) CP/M
 - (4) Windows 3.1
 - (5) Macintosh System Software
- 34.** During the first generation of computers, which type of operating system was commonly used, where each task was executed sequentially, and the entire program had to be loaded into memory before execution?
- (1) Batch Processing System

- (2) Multiprogramming System
- (3) Time-Sharing System
- (4) Real-Time Operating System (RTOS)
- (5) Distributed Operating System

35. During the fourth generation of computers, what key innovation significantly enhanced input devices, transforming the way users interacted with computers? This technology relies on detecting the movement of a device across a surface and is widely used in modern laptops and smartphones.

- (1) Trackball
- (2) Joystick
- (3) Touchpad
- (4) Optical Mouse
- (5) Graphics Tablet

Part B

- 1) Express the following numbers in decimal: $(10110.0101)_2$, $(16.5)_{16}$, and $(26.24)_8$
- 2) Convert the hexadecimal number 68BE to binary and then from binary, convert it to octal.
- 3) convert the following binary numbers into decimal form:
 - a) 01000101_2
 - b) 01110000_2
 - c) 11000001_2
 - d) 10010111_2
 - e) 01010101_2
 - f) 10101010_2
 - g) 01100101_2
- 4) Convert the following decimal numbers to binary equivalent.

(a) 16	(b) 247	(c) 962.84
(d) 0.0132	(e) 6.74	(f) 1200
(g) 105.625	(h) 455.896	(i) 1675
- 5) Convert the following octal numbers to their decimal equivalent:

(a) 14_8	(b) 236_8	(c) 1432_8
(d) 567	(e) 2256.653	(f) 1200
(g) 5362.635	(h) 1624	(i) 4426
- 6) Convert the following decimals numbers to their octal equivalent:

(a) 553	(b) 6878	(c) 1258
(d) 0.0132	(e) 6.74	(f) 1200
(g) 105.625	(h) 455	(i) 1675
- 7) Convert the following binary numbers to their octal equivalent:

(a) 10110010	(b) 10101101	(c) 1110101
(d) 1101010100	(e) 1011010110	(f) 10100110101
(g) 101101010111	(h) 01010101110	(i) 10010101001
- 8) Express each number as a binary number.
 - a. 2524_8
 - b. $BAC9_{16}$
 - c. 332210_8
 - d. $4009D_{16}$
- 9) Express each number as an octal number.
 - a. 101001001_2
 - b. 1001010000100010_2
 - c. $B78_{16}$
 - d. 1234_{16}

10) Express each number as a hexadecimal number.

a. 1010100000010101010_2

b. 1010101010_2

c. 2526_8

d. 50004734_8