Unit 1: Computer Systems

76 MCQs. Correct option in bold. 1 mark each.

1. The decimal number 5 is represented in binary as
A. 100 **B. 101** C. 111 D. 110

2. The ASCII code of the letter 'A' is
A. 48 (00110000) B. 97 (01100001)
C. 65 (01000001) D. 90 (01011010)

3. The ASCII code of 'Z' (90 in decimal) in binary is
A. 01001110 B. 01011000 C. 01101001 **D. 01011010**

4. An 8-bit unsigned integer can represent values from
A. 0 to 255 B. 0 to 127
C. -255 to 255 D. -128 to 127

5. In an 8-bit signed integer representation, the range of values is
A. 0 to 255 B. -256 to 255
C. -128 to 127 D. -127 to 128

6. The number of different values that can be represented with a 10-bit binary number is
A. 256 **B. 1024** C. 512 D. 2048

7. The base of the binary number system is
A. 2 B. 8 C. 10 D. 16

8. The base of the hexadecimal number system is
A. 2 B. 8 C. 10 **D. 16**

9. The hexadecimal number system uses digits
A. 0–9 and letters A–F B. 1–6 and letters A–J
C. 0 and 1 D. 0–15 only

10. The decimal equivalent of binary $(1011.101)_2$ is
A. 10.625 **B. 11.625** C. 13.625 D. 11.5

11. The decimal equivalent of octal $(672)_8$ is
A. 56 B. 384 C. 672 **D. 442**

12. The decimal equivalent of hexadecimal $(1BE8)_{16}$ is
A. 2816 B. 224 **C. 7144** D. 4096

13. The binary equivalent of decimal 179 (integer part) is
A. 10110001 B. 11110011 C. 10010011 **D. 10110011**

14. Each octal digit is converted to _____ binary bits.
A. 3 B. 4 C. 2 D. 8

15. Each hexadecimal digit is converted to _____ binary bits.
A. 8 B. 3 **C. 4** D. 2

16. To convert binary to hexadecimal, group the bits in
A. threes from the right **B. fours from the right**
C. eights from the right D. twos from the left

17. To convert binary to octal, group the bits in
A. fours from the right B. fives from the right
C. twos from the right **D. threes from the right**

18. In binary addition, 1 + 1 equals
A. 2 **B. 10 (0 carry 1)**
C. 1 D. 11

19. Overflow happens when a calculation result is
A. too small to be represented B. exactly zero
C. too large to fit in the available bits D. negative

20. Adding 1 to 255 in an 8-bit unsigned register causes
A. overflow B. no error
C. underflow D. a carry-free result of 255

21. The 1's complement of a binary number is obtained by
A. dropping the last bit B. shifting bits left
C. adding 1 **D. inverting all its bits**

22. The 1's complement of binary 01101 is
A. 10010 B. 01101 C. 11111 D. 10011

23. The 2's complement of a binary number is obtained by taking the 1's complement and then
A. inverting again B. shifting left
C. adding 1 to the LSB D. subtracting 1

24. The 2's complement of 01010001 is
A. 10101110 **B. 10101111** C. 10101011 D. 01010001

25. The range of an n-bit unsigned binary number is
A. 0 to 2^n B. 1 to 2^n
C. -2^n to 2^n **D. 0 to $2^n - 1$**

26. The most common method to represent signed numbers in modern computers is
A. sign-magnitude only B. octal
C. two's complement D. one's complement

27. The 8-bit two's complement representation of −43 is
A. 11010101 B. 11101011 C. 10101010 D. 10101011

28. ASCII stands for
A. Advanced Standard Code for Information Interchange
B. American Standard Code for Information Interchange
C. American Standard Code for Internet Interchange
D. American System Code for Information Interchange

29. Standard ASCII uses _____ bits and represents 128 characters.
A. 7 B. 32 C. 16 D. 8

30. Extended ASCII (ASCII-8) uses 8 bits and represents
A. 512 characters B. 128 characters
C. 256 characters D. 65,536 characters

31. IBM chose to use _____ code in its computers instead of ASCII at first.
A. UTF-8 B. Unicode C. ANSI **D. EBCDIC**

32. Unicode was developed to support
A. only symbols **B. all written languages of the world**
C. only numbers D. only English

33. UTF stands for
A. Unicode Text File B. Universal Text Format
C. Universal Transfer Format **D. Unicode Transformation Format**

34. An operating system (OS) is
A. a web browser
B. a type of hardware
C. essential software that manages memory, processes, hardware and software
D. a programming language

35. Which of the following is an example of an operating system?
A. Photoshop **B. Linux**
C. Google Chrome D. Microsoft Word

36. A process is
A. a program in execution B. a device driver
C. a hardware part D. a program stored on disk

37. File management allows users to
A. only create files
B. only delete files
C. only print files
D. create, copy, move, rename, delete and search files

38. A batch processing OS
A. uses many CPUs
B. groups similar tasks into batches and executes them sequentially
C. runs on embedded devices
D. responds immediately

39. A multiprogramming OS
A. uses time slices
B. runs only one program
C. loads multiple programs into main memory so the CPU is rarely idle
D. runs only in devices like TVs

40. A multitasking OS
A. performs multiple tasks concurrently by rapidly switching between them
B. runs only one task
C. has no CPU
D. processes jobs in batches only

41. A time-sharing OS divides CPU time into short intervals called
A. batches B. threads
C. blocks **D. time slices**

42. A real-time operating system (RTOS) is used where
A. files are copied
B. documents are written
C. timing is critical, such as medical equipment and traffic control
D. games are played

43. A distributed OS manages
A. a keyboard only **B. a network of computers**
C. a single processor D. a printer only

44. An embedded OS is built into
A. the hardware of a specific device like a microwave oven or TV
B. a desktop only
C. a server only
D. a web browser

45. The five states of a process are start, ready, running, waiting and
A. paused B. deleted
C. terminated D. restarted

46. A process that is ready for execution but waiting for the CPU is in the
A. ready state B. blocked state
C. terminated state D. running state

47. A process being executed by the processor is in the
A. terminated state B. ready state
C. start state **D. running state**

48. A process waiting for a resource is in the
A. ready state **B. blocked (waiting) state**
C. start state D. running state

49. Every process has at least
A. ten threads B. two threads
C. no thread **D. one thread**

50. Interrupts are signals that
A. delete files
B. close programs
C. alert the CPU to events needing immediate attention
D. slow down the CPU

51. A deadlock happens when
A. two or more processes wait for resources held by each other
B. a process finishes
C. the CPU is idle
D. memory is empty

52. The scheduling algorithm that gives CPU time in fixed time slices in cyclic order is
A. Priority scheduling **B. Round Robin**
C. First-Come First-Served D. Shortest Job Next

53. The memory management technique that divides memory into fixed-sized blocks is
A. virtual memory only B. segmentation
C. contiguous allocation only **D. paging**

54. The most common directory structure is
A. two-level B. circular
C. tree-structured D. single-level

55. Which file system is used by Windows NT and later versions?
A. HFS **B. NTFS** C. FAT D. ext4

56. Computer software is
A. a collection of programs, data and instructions that tell a computer what to do
B. physical parts of a computer
C. a power supply
D. a network cable

57. The main types of software are system, application, programming and
A. keyboard software B. memory software
C. driver software D. monitor software

58. Which type of software manages hardware and system resources?
A. Programming software B. Driver software
C. Application software **D. System software**

59. Printer drivers are examples of
A. driver software B. application software
C. programming software D. system software

60. Driver software acts as a bridge between
A. two files
B. the operating system and hardware devices
C. two users
D. two websites

61. Visual Studio and Eclipse are examples of
A. application software B. driver software
C. operating systems **D. programming software**

62. Which of the following is an offline application?
A. VLC Media Player B. Gmail
C. Google Docs D. Spotify streaming

63. Microsoft Access and MySQL are examples of
A. presentation software B. spreadsheets
C. database management systems D. word processors

64. An application patch is a piece of software designed to
A. format a disk
B. update, fix or improve an existing program
C. delete a program
D. install an OS

65. Installing and running software on servers within an organisation's own premises is called
A. dedicated hosting B. cloud hosting
C. shared hosting **D. on-premises hosting**

66. An entire physical server used exclusively by one organisation is called
A. shared hosting B. cloud hosting
C. dedicated hosting D. on-premises hosting

67. Cloud hosting is highly
A. costly and fixed
B. scalable and flexible with pay-as-you-go pricing
C. limited to one server
D. offline

68. Which component of programming software translates high-level code into machine code?
A. Compiler B. Text editor
C. Spreadsheet D. Browser

69. IDE stands for
A. Integrated Design Editor B. Internal Debugging Environment
C. Integrated Development Environment D. Internet Development Engine

70. An IDE combines a text editor, a debugger and a
A. browser B. printer driver
C. spreadsheet **D. compiler**

71. A debugger allows programmers to
A. run code step by step and inspect variables
B. browse the web
C. play music
D. print documents

72. Which tool provides coding, debugging and compiling in one place?
A. Repository **B. IDE**
C. Translator D. Text editor

73. Which component of system software controls input and output operations?
A. Word processor B. Spreadsheet
C. Web browser **D. Device driver**

74. Which software helps programmers store and manage code versions?
A. Code debugger B. Code translator
C. Code repository D. Code compiler

75. Which system software manages data transfer between RAM and storage devices?
A. Operating system B. Presentation software
C. Text editor D. Antivirus

76. Which is an example of an offline computing platform?
A. Cloud compiler **B. Installed IDE**
C. Online editor D. Web-based IDE