COMPUTER BASICS

List of Exercise

Topic: Introductory concepts of computers

1. What is a computer? Mention some important characteristics of computer and explain them.
2. Describe the application areas of computer in real life.
3. Who is the father of computer? What do you know about the following terms: UNIVAC, ENIAC, EDSAC, MARK I.
4. What is computer generation? Write down the important characteristics of each generation computers.
5. Describe the simplest and expanded computer system with figure.
6. Draw the basic organization of a computer system and explain with each unit.
7. What is computer bus? Explain different types of computer system bus.
8. Mention some popular expansion bus.

Topic: Classification of computers

9. Write down some important features of general purpose and special purpose computer.
10. What do you know about analog computer? Write down its components , strength and weakness.
11. Discuss about the digital computer.
12. Write the operation of hybrid computer.
13. Distinguish between analog and digital computer.
14. Describe different types of computer based on size, memory and other features.
15. Write the comparison table of micro, mainframe and super compter.
16. Write short notes on;
    (a) Work Station
    (b) Desktop Computer
    (c) Note book Computer
17. Discuss about different types of handheld computer.

Topic: Number system and digital logic design

18. What is number system? Write the base values and digits of all positional number systems.
19. Explain the decimal number system with example.
20. Explain the binary number system with example.
21. Explain the octal number system with example.
22. Explain the hexadecimal number system with example.
23. Briefly explain the character code, ASCII code, EBCDIC code and BCD code with example.
24. Convert the numbers $(5674)_{10}$ to all other positional number systems and vice versa.
25. Convert the numbers $(ABCD)_{16}$ to all other positional number systems and vice versa.
26. Convert the numbers $(452)_8$ to all other positional number systems and vice versa.

27. Explain basic logic gates.
28. Proof the universality of NAND and NOR gates.
29. State and proof De-Morgan's theorem for two variables.
30. State and proof De-Morgan's theorem for three variables.

Topic: Computer hardware

31. What do you mean by computer hardware? Classify computer hardware.
32. What does MICR stand for? Discuss MICR with its area of application.
33. What do you mean by OMR and OCR? Write down the difference between OMR and OCR.
34. Discuss the functions of the following terms:
    (a) Mouse (b) Keyboard (c) Light Pen (d) Touch Screen (e) Scanner (f) Digitization Tablet
35. What is Bar Code Reader? What are the functions of Bar Code Reader?

Topic: Output Hardware

36. What do you mean by hard copy and soft copy output hardware?
37. What is printer? Write down different types of printer using chart. Why are these called hardcopy devices?
38. Define impact and non-impact printer. What are the differences between them?
39. Distinguish between character printers, line printers and page printers.
40. Write down short notes on the following:
    (a) Dot Matrix printer
    (b) Ink-jet printer
    (c) Drum printer
    (d) Chain printer
    (e) Daisy wheel printer
    (f) Thermal transfer printer
    (g) Plotter
41. What is a laser printer? Discuss the working principle of laser printer.
42. Compare Laser, Ink-jet and Thermal printers.
43. What do you mean by monitor? Write down the working principle of CRT and LCD monitor with diagram.
44. What do you mean by the terms resolution, dot pitch and refresh rate?

Topic: Processing Hardware

45. What do you mean by CPU? Why is it called the heart of computer?
46. Describe the components of CPU with figure.
47. Write the operation of microprocessor with figure.
48. Write down the functions of CPU.
49. What do you know about ALU? Write the tasks of ALU.
50. Explain the operation of control unit with figure.
51. What is CPU register? Describe different types of registers with their functions.
52. Describe the steps of machine cycle.

53. What are factor that should be considered in CPU speed?
54. What do you know about math co-processor, internal clock speed?

Topic: Peripheral and storage devices

55. What is RAM? Describe different types of RAM chips.
56. What is volatile and non-volatile memory? Give at least two examples.
57. Distinguish between memory and secondary memory.
58. What is cache memory? Why it is used in computer system?
59. Write short notes on:
    (a) CD-ROM (b) Flash Memory (c) Cache Memory (d) Virtual Memory
60. What are the differences between the following terms?
    (a) ROM an RAM (b) EPROM and EEPROM (c) SRAM and DRAM
61. What do you mean by ROM? Describe about different types of ROM.
62. What do you mean by Read and Write operation of a floppy disk?
63. Describe about hard disk and floppy disk with diagram, advantages and disadvantages.
64. What is computer memory? Mention the types of computer memories with example.
65. Computer cannot run without primary memory. Explain-why?
66. Primary memory is very fast comparing to secondary memory. Then why do need to use secondary memory?

Topic: Computer Software

67. What is software? Mention the relation between hardware and software.
68. How many types of software are there?
69. What is system software? Mention the functions of system software.
70. What is application software? State some application software.
71. What is operating system?
72. What is utility program?
73. What are application packages?
74. What are firmware, shareware and freeware?
75. Write the process of document creating and saving.
76. What is document formatting?
77. How can you insert the header and footer in your document?

Topic: Operating System

78. What do you mean by operating system? Mention the name of some operating systems with their platform.
79. Describe the layers and abstract view of computer system in relation with OS.
80. Describe the major functions of operating system.
81. Mention important features of command line interface (CLI) and GUI.
82. Explain batch processing system with features, advantages and disadvantages.
83. What is multiprogramming? Write down the requirements of multiprogramming.
84. Describe multiprocessing system with advantages and limitations.

85. Write short notes on;
    (a) Time sharing OS (b) Real time OS
86. What do you know about network operating system? Describe peer-to-peer and client-server OS.
87. Write short notes on some popular OS, such as:
    (a) MS DOS (b) Windows (c) Unix (d) Linux (e) Mac OS
88. Compare the following terms;
    (a) Batch processing Vs Multiprogramming
    (b) Multiprogramming Vs Multiprocessing
    (c) Multiprogramming Vs Time sharing
    (d) Real time Vs Time sharing

Topic: Software Development Concepts

89. Describe program development steps with figure.
90. What is algorithm? Write down the characteristics of algorithm.
91. Draw the basic symbol used in flow chart.
92. Write the guidelines for drawing the flow chart.
93. What is pseudo code? Write the purpose of pseudo code.
94. Write the guidelines for writing the flowchart.
95. Describe machine and assembly language.
96. Write the importance of high level language.
97. Write short note on 4GL.
98. What is DBMS? Write down its functions.
99. Write down the advantages of DBMS over file system.
100. What is translator program? Describe compiler, interpreter and assembler.
101. What do you know about structured and modular program design technique?
102. Write down the difference between compiler and interpreter?

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