First Semester B.Sc. Degree (C.B.C.S.S.) Examination

Complementary Course- Computer Science

CA1CMT01-COMPUTER FUNDAMENTALS

(For B.Sc. Mathematics Model I, Statistics, Petrochemicals, BA Economics Model II and B.Sc. Zoology and Industrial Microbiology)

Time: 3 Hrs Total Marks: 60

Part A

Answer any 10 questions (1 mark each)

1. What is the basic component of a first generation computer?
2. Write the difference between bit and byte.
3. What is the unit of speed used for a super computer?
4. What is ASCII stands for?
5. $(86)_{10}$ = (----------)$_2$
6. What is the octal equivalent of 1110101?
7. Draw the block diagram symbol of the NOR gate?
8. Write one Universal gate.
9. What is the dual of the Boolean expression $\overline{A}B + A\overline{B}$
10. Write one example of system software.
11. Draw the logic circuit diagram of the Boolean expression $A(B+\overline{C})$
12. Name the operating system that allows only one program to run at a time.

(10 x 1 = 10)

Part B

Answer any 6 questions (5 marks each)

13. Explain the Analog, Digital and Hybrid computers
14. Explain briefly
    a) Light Pen
    b) Plotter
15. a) Differentiate between RAM and ROM.
    b) What is a Cache memory?
16. a) Write the 4-bit BCD code for the numbers- 25,64,128,1024
    b) Why was BCD code extended to EBCDIC?
17. What is a logic gate? Explain the NAND and NOR gates with truth table and block diagram.
18. What are language translators? Explain the differences between compiler, interpreter and assembler.
19. Distinguish between hardware and software.

20. Explain the functions of an operating system.

21. List the features of Linux Operating system.

(6 x 5 = 30)

Part C

Answer any *two* questions (10 marks each)

22. Explain the logical organization of a digital computer with diagram.

23. a) Explain briefly the binary, octal and hexadecimal number system.

    b) Do the following conversions

    i. $(127)_{10}$ to binary

    ii. $(10110011)_2$ to decimal

    iii. $(5112)_{10}$ to hexadecimal

    iv. $(FA8)_{16}$ to binary

    v. $(562)_8$ to hexadecimal

24. a) Write the postulates of Boolean Algebra

    b) Write and prove the theorems of Boolean Algebra

25. What is an Operating System? Explain the different types of operating systems.

(10 x 2 = 20)