D 73144 (Pages : 3) Name.....

Reg. No.....

FIRST SEMESTER B.A./B.Sc. DEGREE EXAMINATION
NOVEMBER 2019

(CUCBCSS—UG)

Computer Science

BCS 1C 01—COMPUTER FUNDAMENTALS

(Common for 2014 and 2017 Admissions)

Time : Three Hours Maximum : 64 Marks

Part A

Answer **all** *questions.*
Each question carries 1 *mark.*

I. Choose the correct answer from the choices given.

1 Which register holds the address of the active memory location ?

(a) MAR. (b) MBR.

(c) PC. (d) IP.

2 Which memory is also called flash memory ?

(a) EEPROM. (b) UVEPROM.

(c) Cache. (d) ROM.

3 The time required to position the read/write heads on the specified track/cylinder is called :

(a) Latency. (b) Seek time.

(c) Turn around time. (d) Access time.

II. Fill in the blanks :

4 DVD stands for ————.

5 ———— converts bitmap images of characters to equivalent ASCII codes

6 Expand LCD : ————.

III. State whether the following statements are True or False.

7 $10_{10} = A_{16}$.

8 BCD is an 8 bit code that can represent 256 different characters.

9 ROM is a volatile memory.

(9 × 1 = 9 marks)

Turn over

Part B

Answer **all** *questions.*
Each question carries 2 marks.

10 Differentiate seek time and latency.

11 What is MICR ?

12 What is an image scanner ?

13 Implement OR gate using NAND.

14 Convert

(a) $(45)_8 = (\text{————})_{16}$.

(b) $(AC5)_{16} = (\text{————})_8$.

(5 × 2 = 10 marks)

Part C

Answer any **five** *questions.*
Each question carries 5 marks.

15. Construct a logic circuit for the Boolean expression $A \cdot \sim B + C \cdot (A + B \cdot D)$ using NAND gates only.

16. State and prove the two basic De Morgan's theorem.

17. State the functions of any five registers of CPU.

18. What are advantages and limitations of magnetic disks ?

19. What is a flow chart ? Draw a flowchart to print the biggest of three numbers.

20. What is an algorithm ? Write an algorithm to add up all even numbers between 0 and 100 and print the result.

21. Define the term byte. What is the difference between a bit, nibble and byte ? Write notes on BCD, EBCDIC, ASCII ?

22. Compute the following :

(A) Convert $(72)_{16}$ to decimal and octal

(B) Convert $(105)_8$ to decimal and hexadecimal.

(C) Convert $(45)_{10}$ to octal and hexadecimal.

(5 × 5 = 25 marks)

Part D

Answer any **two** *questions.*
Each question carries 10 *marks.*

23. Compute :

(a) $(110101)_2 + (10011)_2$.

(b) $(111110)_2 + (100010)_2$.

(c) $(101011)_2 + (110)_2$.

(d) $(111)_2 + (1000)_2$.

(e) $(11000110)_2 + (0101001)_2$

(f) $(10001)_2 - (111)_2$

(g) $(11111)_2 - (10101)_2$

(h) $(101110)_2 - (11011)_2$

(i) $(1010100)_2 - (10010)$.

(j) $(100)_2 - (11)_2$.

24. Briefly explain Secondary storage devices.

25. Explain various types of printers.

($2 \times 10 = 20$ marks)