I 770050 **DCCA113**

Reg. No. | | | | | | | | |

I Semester B.C.A. Degree Examination, December/January - 2025/26

COMPUTER APPLICATIONS

Computer Architecture (Theory)

(SEP Scheme)

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates:

All Sections are compulsory.

SECTION - A

I. Answer any Ten questions. Each question carries 2 marks. **(10×2=20)**

1. Define Binary Number system.
2. Convert $(242)_{10}$ to Binary.
3. Add 10110_2 and 10101_2
4. List two characteristics of combinational circuit.
5. What are unidirectional and bidirectional bus?
6. Define Integrated Circuit.
7. Define Instruction code.
8. Define computer Architecture.
9. What are the three types of CPU organization?
10. List any two features of 8085 Microprocessor.
11. What is stack pointer?
12. Define Microprocessor.

SECTION - B

II. Answer any Five questions. Each question carries 6 marks. **(5×6=30)**

13. Given the Boolean Function, $F(A,B,C,D)=\sum(0,2,3,4,7,8,11,12)$ reduce it by K-map.
14. Write a Gray code for decimal number 1 to 10.

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15. Explain in detail RS Flip Flop.
16. Explain with neat diagram 4×1 multiplexer.
17. Explain Block diagram of control unit.
18. Write a short note on any three addressing modes.
19. Explain Flag Register in 8085.
20. Describe the rotate instructions - RAL, RAR, RLC and RRC in the 8085 Microprocessor.

SECTION - C

III. Answer any Three questions. Each question carries 10 marks. **(3×10=30)**

21. Describe with neat diagram and truth table of 3 to 8 Decoder.
22. Explain bus organization of central processing unit with neat diagram.
23. Briefly explain pin diagram of 8085 microprocessor.
24. a) Define logic gate. Explain NAND and NOR gates. **(6)**
    b) Subtract $(1011)_2$ from $(1101)_2$ using 1's and 2's compliment method. **(4)**
25. a) Explain full adder with truth table and boolean function. **(5)**
    b) Differentiate between RISC and CISC. **(5)**