

|                                                    |     |         |      |                 |     |
|----------------------------------------------------|-----|---------|------|-----------------|-----|
| 2024                                               | III | 14      | 1100 | <b>V - 298</b>  | (E) |
| <b>COMPUTER SCIENCE</b><br><b>PAPER - II (D-9)</b> |     |         |      |                 |     |
| Time : 3 Hours                                     |     | 4 Pages |      | Max. Marks : 50 |     |

*Instructions : (1) All questions are compulsory.*

*(2) Figures to the right indicate full marks.*

*(3) Draw a neat and labelled diagram wherever necessary.*

*(4) Use of any type of calculator is not allowed.*

*(5) Due marks will be given for any other equivalent logic in questions wherever program code/mnemonics are expected.*

*(6) Comments are must in assembly language program.*

1. (A) Select the correct alternative for blank space and rewrite entire statement, for the following :

(a) The invalid register pair in 8085 Microprocessor is \_\_\_\_\_. 1

(i) BC

(ii) HL

☒ (iii) SP

(iv) DE

☒ (b) The length of instruction PUSH Rp is \_\_\_\_\_ byte(s). 1

(i) 2

☒ (ii) 1

(iii) 3

(iv) 4

(c) 8051 is \_\_\_\_\_ bit microcontroller. 1

- (i) 8
- (ii) 4
- (iii) 16
- (iv) 32

(d) The device used to extend cable length of a computer network is \_\_\_\_\_. 1

- (i) Modem
- (ii) Hub
- (iii) Repeater
- (iv) Router

(B) Answer any two of the following :

(a) Contents of flag register of 8085 Microprocessor is 55H. Write its bit pattern and give interpretations. 3

(b) Explain the organisation of ALU with the help of block diagram. 3

(c) Define Microcontroller. State any 4 advantages of same over microprocessor based system. 3

2. (A) Answer any two of the following :

(a) Identify 1-byte, 2-byte and 3-byte instructions from the following and write the same : 3

- (i) LDA CO40H
- (ii) ADC M
- (iii) CPI D4H
- (iv) ORI 9DH
- (v) XTHL
- (vi) LHLD 2060H

(b) List any six characteristics of transmission media. 3

(c) State any three addressing modes of 8085 Microprocessor instructions with one example of each. 3

(B) Answer any one of the following :

(a) Explain the function of following pins of 8085 Microprocessor : 4

(i)  $\overline{RD}$

(ii) HOLD

(iii) RST 7.5

(iv)  $\overline{INTA}$

(b) What is Ring Topology ? Draw neat labelled diagram to show Ring Topology. State one advantage and one disadvantage of Ring Topology. 4

3. (A) Answer any two of the following :

(a) Differentiate between UTP and STP Cables. 3

(b) What is Bus ? Explain address Bus and Data Bus of 8085 Microprocessor. 3

(c) State any two advantages and any one disadvantage of wireless media in networking. *one* 3

(B) Answer any one of the following :

(a) Explain following connectivity devices : 4

(i) Modem

(ii) Hub

(b) Consider Accumulator contains FFH and register C contains 4DH. Execute following instructions one after the other and write contents of Accumulator after each instruction : 4

(i) XRA A

(ii) ADD C

(iii) CPI 4D H

(iv)  $\overline{SUB}$  C

4. (A) Answer any two of the following :

(a) Differentiate between Hardware and Software interrupts of 8085 Microprocessor. (Any three points) 3

(b) State any six features of 8051 Microcontroller. 3

(c) Draw and label programming model of 80286 Microprocessor. 3

(B) Answer any one of the following :

(a) List all conditional jump instructions of 8085 Microprocessor with the condition of flag, in each. 4

(b) Explain following features of Pentium Microprocessor : 4

- (i) Dual Pipeline
- (ii) On-chip cache
- (iii) Branch Prediction
- (iv) 64-bit data bus

5. Answer any two of the following :

(a) Write an assembly language program to multiply two 1-byte data stored at memory locations C600 H and C601 H respectively. Store the 16-bit result at locations C602 H and C603 H beginning with lower order byte of the result. 5

(b) Consider a block of memory locations from C300 H to C30F H, another block from C400 H to C40F H. Write an assembly language program to exchange contents of these two blocks. 5

(c) Write an assembly language program to get Binary Coded Decimal (BCD) sum of series of 1-byte numbers stored at locations beginning 2600 H. Length of series is at 25FF H. Store the 1-byte result in 2700 H. 5

OR

5. (a) A series of 1-byte hexadecimal data is stored at memory locations from D600 H to D60A H. Write an assembly language program to replace each odd number in the series with data 00H. 5

(b) Consider a block of memory locations beginning D600 H to D60F H. Write an assembly language program to find first occurrence of data byte A2 H, in this block. Store the address of its first occurrence in HL pair. If not found, HL pair must contain 0000H. 5

(c) A block of fifteen memory locations begins D200 H. Write an assembly language program to convert each data in the block into its 1's complement. Store the result at locations beginning D300 H. 5

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