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BRAINWARE UNIVERSITY

Term End Examination 2024-2025
Programme – Dip.RA-2023
Course Name – Microprocessor and Microcontroller
Course Code - ECPC401
(Semester IV)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Identify How many number of output pins are present in 8085 microprocessors
a) 27 b) 40
c) 19 d) 24

(ii) Which of the following microprocessors is a 4 bit microprocessor?
a) 4004 b) 8080
c) 8085 d) Z80

(iii) Which pin is used for demultiplexing of address and data bus of 8085 microprocessor?
a) TRAP b) ALE
c) IO/M' d) READY

(iv) Identify four byte instruction from the following
a) MOV AX, 2345 b) MUL BX
c) DIV CL d) ADD AX, [BP+0200]

(v) The instruction, MOV AX, 1234H indicates that its addressing mode is
a) register addressing mode b) immediate addressing mode
c) based indexed addressing mode d) direct addressing mode

(vi) The instruction MOV AX, [BX] indicates that its addressing mode is belong to
a) register direct addressing mode b) immediate addressing mode
c) register indirect addressing mode d) indirect addressing mode

(vii) Let 81H & C2H are added. Determine the content of the accumulator after execution of the instruction RAR
a) 82H b) 87H
c) 90H d) 97H

(viii) Identify in which of the following register can be used as two individual 8 bit register in 8051?
a) DPTR b) PC

c) SBUF d) PSW

(ix) Identify how many register banks are present in 8051 microcontroller

a) 4 b) 3
c) 2 d) 1

(x) Indicate how many bytes of bit addressable memory is present in 8051 based microcontrollers?

a) 8 bytes b) 32 bytes
c) 16 bytes d) 128 bytes

(xi) Both the ALU and control section of CPU employ which special purpose storage location?

a) Buffers b) Decoders
c) Accumulators d) Registers

(xii) Identify how many address lines are required to access 2M byte of data from microprocessor

a) 16 bit b) 8 bit
c) 20 bit d) None of these

(xiii) Identify how many number of flags present in 8051 that respond to the math operation

a) 2 b) 3
c) 4 d) 5

(xiv) Identify how many pins are present for I/O in a 8051 microcontroller

a) 32 b) 24
c) 16 d) 8

(xv) In 8086 microprocessor, identify which one of the following statements is not true?

a) coprocessor is interfaced in max mode b) coprocessor is interfaced in min mode
c) i/o can be interfaced in max / min mode d) supports pipelining

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Illustrate vector and non-vector interrupt of 8085 microprocessor with example. (3)

3. Differentiate between minimum and maximum modes of 8086 microprocessor. (3)

4. Write instruction to perform the following operations in 8051 microcontroller: (3)
   (a) Add 23H to the content of accumulator,
   (b) Subtract the content of R1 register from accumulator with borrow,
   (c) Increment the content of internal memory location specified by R0.

5. Explain the advantages and disadvantages of memory mapped I/O and I/O mapped I/O scheme. (3)

6. Compare the instructions: MOV A, M and LDAX D. (3)

OR

Differentiate between CALL and JMP instructions. (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Write down an assembly language program to block of data transfer one memory location to another memory location. (5)

8. With examples, explain the various addressing modes of 8086 microprocessor. (5)

9. Explain the features of 8051 microcontroller in brief. (5)

10. Explain the process of address decoding in memory interfacing. (5)

11. Describe the Flag register of 8086 microprocessor. (5)

12. An 8085 program adds the hex numbers 2FH and 32H and places the result in its accumulator. Evaluate the status of 8085 flags CY, P, AC, Z, S on completion of this additions. (5)

OR

Explain different memory segmentation of 8086 microprocessors. (5)

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