

(3 Hours)

[Total Marks: 80]

Note : Q1 is compulsory.

Attempt any THREE out of the remaining questions.

Assume suitable data if necessary.

Q1. Attempt any 4 sub questions

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| a) Explain six stage instruction pipeline with suitable diagram. | 5 |
| b) Write a note on 8288 bus controller. | 5 |
| c) Explain memory hierarchy. | 5 |
| d) Draw the flowchart of unsigned binary restoring division algorithm. | 5 |
| e) Explain any five instructions of 8086 microprocessor with suitable examples. | 5 |
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| Q2. a) What is DMA? Explain working of DMA. | 10 |
| b) List and explain key characteristics of computer memory. | 10 |
| | |
| Q3 a) Draw the flowchart of Booths algorithm and multiply $(-3)*(4)$ using Booths algorithm. | 10 |
| b) Explain micro-programmed control unit with suitable diagram. | 10 |
| | |
| 4 a) Explain addressing modes of 8086 microprocessor with suitable examples. | 10 |
| b) Explain single and double precision IEEE 754 binary floating point representation formats. | 10 |
| | |
| Q5. a) Explain with suitable diagram maximum mode of operation of 8086 Micro processor. | 10 |
| b) Write 8086 Assembly Language Program to count number of 0's and 1's in a given 8 bit number. | 10 |
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| Q6 Write notes on (any two) | 20 |
| a) Cache memory mapping techniques. | |
| b) Flynn's classification of parallel computers. | |
| c) Programmed I/O. | |