Code No.: AD305PC | R20 | H.T.No. | | | 8 | R | | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II–B.TECH–I–Semester End Examinations (Regular) - February- 2023
COMPUTER ORGANIZATION AND MICROPROCESSOR
(AI&DS)

[Time: 3 Hours] **[Max. Marks: 70]**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A **(20 Marks)**

1. a) Write a notes on symbolic micro program. [2M]
   b) Draw a block diagram of the computer showing the memory and registers. [2M]
   c) How does 8086 differentiate between an opcode and instruction data? [2M]
   d) What do you mean by addressing modes? [2M]
   e) What is MACRO? [2M]
   f) What are the DOS function call? [2M]
   g) Highlight the rules of arithmetic addition and subtraction in the fixed – point representation. [2M]
   h) Explain input-output interface. [2M]
   i) Illustrate the structure of magnetic disk. [2M]
   j) How to define the speedup of a pipeline processing over an equivalent nonpipelined processing. [2M]

PART-B **(50 Marks)**

2. What is the difference between a direct and an indirect address instruction? How many references to memory are needed for each type of instruction to bring an operand into a processor register? [10M]

OR

3. What is fetch cycle in the context of an Instruction cycle? Explain the sequence of Register transfers for the fetch phase? [10M]

4. Explain the function of opcode prefetch queue in 8086. [10M]

OR

5. Discuss about various types of logical instructions of 8086. What is the difference between the respective shift and rotate instructions. [10M]

6. What is interrupt? Explain interrupt response sequence and structure of interrupt vector table of 8086. [10M]

OR

7. What is assembler? Enlist the advantages of assembly language programming over machine language. [10M]

8. Perform arithmetic addition operation on the following floating-point numbers. [10M]
   $A = 0.9504 * 10^3$
   $B = 0.8200 * 10^2$

OR

9. What is the role of DMA? Explain the functioning of a DMA with the help of a diagram. [10M]

10. Illustrate a block diagram of RAM and ROM memories and discuss how memory address mapped to microcomputer. [10M]

OR

11. Explain vector processing for memory interleaving with the help of neat sketch. [10M]

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