Hall Ticket Number :

| | | | | | | | | | |

R-15

Code: 5G356

III B.Tech. I Semester Supplementary Examinations March/April 2023
Microprocessors and Interfacing
(Computer Science and Engineering)

Max. Marks: 70   Time: 3 Hours
Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks)
****

			Marks	CO	BL

UNIT–I

1.	Draw the architecture of 8086 microprocessor and explain the function of each unit in detail.	14M	CO1	2

OR

2. a)	The physical branch address is 5A230 H when CS = 5200 H. Calculate the physical address if CS is changed to 7800 H.	7M	CO1	3
b)	Explain the ASSEMBLY directives with examples.	7M	CO1	2

UNIT–II

3.	With necessary diagrams explain the A/D converter in detail.	14M	CO2	2

OR

4.	Interface a stepper motor to 8086 microprocessor and write an assembly language program (ALP) to rotate 100 teeth, 4-phase stepper motor five rotations clockwise and five rotations anticlockwise.	14M	CO2	5

UNIT–III

5.	Develop the structure of cascading interrupt connection using 8259.	14M	CO3	6

OR

6.	Sketch and explain how to Interface 8257 with 8086	14M	CO3	2

UNIT–IV

7. a)	Describe asynchronous data transfer schemes with suitable examples.	7M	CO2	1
b)	Give the structure how to connect the devices using RS232	7M	CO2	3

OR

8. a)	Explain RS-232C Serial Data Standard and 20ma Current loop	7M	CO2	2
b)	Draw and Explain TTL to RS232 & RS232 to TTL conversion circuits	7M	CO2	2

UNIT–V

9.	Explain segmentation in 80386	14M	CO4	2

OR

10.	Explain Real and Virtual mode in 80286? Also explain the mapping of virtual memory with physical memory and also tell the phenomenon of using page table in microprocessor? Draw and discuss the register organization of 80386?	14M	CO4	2

***

R-15

Code: 5G151

III B.Tech. I Semester Supplementary Examinations March/April 2023
Compiler Design
(Computer Science and Engineering)

Max. Marks: 70   Time: 3 Hours

Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)
****

			Marks	CO	BL

UNIT–I

1. a) Consider the following Recursive grammar: S   Sa | Sb | a |b. Obtain an equivalent grammar with no left recursion? — 10M CO1 L3
   b) What is interpreter? Write Advantages and Disadvantages of Interpreter — 4M CO1 L1

OR

2. a) Explain the different phases of the Compiler, showing the output of each phase using an example for the statement z = (a*20) + b – c? — 10M CO1 L2
   b) What is the difference between a pass and phase of a compiler? — 4M CO1 L3

UNIT–II

3. a) Design CLR parser for the following grammar.
   E → E+T, E →T,T →T*F, T →F, F → (E) , F →id — 14M CO3 L6

OR

4. a) Explain about Dangling Else ambiguity by considering the following grammar.
   S1 → S   S → iSeS | iS | a — 7M CO3 L2
   b) Explain about Error recovery in parsing by considering the below grammar
   E →E + E | E * E | (E) | id — 7M C03 L2

UNIT–III

5. a) Below grammar generates binary numbers with a "decimal" point:
   S→ L. L | L, L→ LB | B, B → 0 | 1 Design an L-attributed SDD to compute S.val, the decimal-number value of an input string. — 7M CO3 L6
   b) Write about type inference for polymorphic functions — 7M CO3 L5

OR

6. a) What is syntax directed translation? How it is used for translation of expressions? — 7M CO3 L3
   b) Distinguish static and dynamic type checking? — 7M CO3 L5

UNIT–IV

7. a) What are various attributes of symbol table? — 5M C04 L1
   b) Explain about the static storage allocation strategy with example and discuss its limitations? — 9M C04 L2

OR

8. a) Discuss about the data structures used for the Symbol table? — 7M C04 L2
   b) Illustrate the functions of Heap management? — 7M C04 L4

UNIT–V

9. a) Describe Natural loops and Inner loops of a flow graph with an example? — 7M CO5 L1
   b) Discuss how Induction Variables can be detected and how transformation can be applied? — 7M CO5 L2

OR

10. a) List and explain about object code forms? — 7M CO5 L1
    b) What are the applications of DAG? Explain how the given expression can be converted into a DAG.   (a+b)*(a+b)+(c+d) — 7M CO5 L2

***