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R-11 / R-13

Code: 1G355

III B.Tech. I Semester Supplementary Examinations May 2018

Microprocessors and Interfacing

(Common to CSE & IT)

Max. Marks: 70

Time: 3 Hours

Answer any **five** questions
All Questions carry equal marks (**14 Marks** each)

- 1. a) Describe the functionality of the following pins of 8086 microprocessor:
i. NMI ii. HOLD iii. IO/ \bar{M} iv. READY v. ALE 7M
- b) Illustrate the following timing diagrams wr.t 8086 microprocessor:
 - i. Minimum mode Memory Read operation
 - ii. Maximum mode I/O Write operation 7M
- 2. a) Describe the functionality of the following instructions of 8086 microprocessor with the help of its syntax and examples:
i. LEA ii. CBW iii. IDIV iv. AAA v. JMP 10M
- b) Develop an 8086 ALP to move a string of 50 data bytes from offset address 2000H to offset address 3000h. 4M
- 3. a) Design an interfacing diagram of interfacing DAC to 8086 μ P through 8255 and then write a program to generate a Triangular waveform. 7M
- b) What is the importance of 8255 PPI? Interface an 8255 with 8086 so as to have Port A address 00, Port B address 02, Port C address 01 and CWR address 03. 7M
- 4. a) Interface two 8K SRAM chips and two 4K EPROM chips with 8086 so as to form a completely working system configuration. Assume continuous memory map. 7M
- b) What is the advantage of DMA controlled data transfer over interrupt driven or program controlled data transfer? With a neat sketch explain the principle operation of 8257 DMA controller. 7M
- 5. a) Give the functionality and use of Mode 0, Mode 1 and Mode 2 of 8253. Also, write a program to generate a delay of 10 ms, use counter 0 in mode 1. 9M
- b) What is the need of 8259 PIC? Briefly explain how the 8259 channels an interrupt request from a peripheral to the 8086 μ P. 5M
- 6. a) Draw and explain Command word and Mode word formats of 8251 USART. 8M
- b) How TTL to RS-232C and RS-232C to TTL conversions are achieved? Explain. 6M
- 7. a) List and explain the major differences between 80286 and 80386. 6M
- b) List out the salient features of Pentium and Pentium Pro processors. 8M
- 8. a) Discuss various addressing modes of 8051 with examples. 10M
- b) Illustrate the internal and external memory organization w.r.t 8051 microcontroller. 4M

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R-11 / R-13

Code: 1G451

III B.Tech. I Semester Supplementary Examinations May 2018

Automata and Compiler Design

(Information Technology)

Max. Marks: 70

Time: 3 Hours

Answer any **Five** questions

All Questions carry equal marks (**14 Marks** each)

- 1. a) Design a DFA that accepts the language over the alphabet $\Sigma = \{0,1,2\}$, where the decimal equivalent of the language is divisible by 3 7M
b) Explain Chomsky hierarchy of languages? 7M

- 2. Write about Phases of compiler. 14M

- 3. Construct CLR Parsing for the below grammar and check whether the string is $W=aadd$ accepted or not? 14M
 $S \rightarrow CC$
 $C \rightarrow aC$
 $C \rightarrow d$

- 4. a) Write about S-attributed and L-attributed grammar in details? 7M
b) Write about Abstract Syntax tree? 7M

- 5. Write about type systems and explain equivalence of type expressions? 14M

- 6. Write about Storage Organisation and allocation strategies? 14M

- 7. a) What is flow graph? Explain how given program can be converted into flow graph? 7M
b) Write briefly about various loop optimization techniques? 7M

- 8. Write short notes on the following 14M
 - a) Object Code Forms
 - b) Register allocation and assignment
