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Question Paper Code: AEC021



**INSTITUTE OF AERONAUTICAL ENGINEERING**  
(Autonomous)

Four Year B.Tech V Semester End Examinations (Regular) - November, 2018

Regulation: IARE – R16

**MICROPROCESSORS AND INTERFACING**

Time: 3 Hours

(CSE)

Max Marks: 70

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

**UNIT – I**

1. (a) Explain the register organization model in 8086 with examples. [7M]
- (b) Explain the function of the following flags in 8086 micoprocessor. [7M]
  - i. Overflow Flag
  - ii. Direction Flag
  - iii. Interrupt-enable Flag
  - iv. Auxiliary carry Flag
2. (a) List out the instruction set types of 8086 microprocessor and explain with example. [7M]
- (b) Explain the operation of following instruction. [7M]
  - i. MOV AX, DX
  - ii. ADD [BX], [BX+SI+7]
  - iii. JNZ label1

**UNIT – II**

3. (a) Write an assembly language program to find the largest number from an array of 5 numbers. [7M]
- (b) Explain the following pins with respect to 8086 microprocessor. [7M]
  - i. ALE
  - ii. HOLD
  - iii.  $IO/\bar{M}$
  - iv. DEN
4. (a) With the help of neat sketch, explain the timing diagram of the write cycle for minimum mode configuration for 8086 microprocessor [7M]
- (b) What is function of a typical DMA Controller. Explain mode set register configuration in 8257 [7M]

### UNIT – III

5. (a) Explain Mode 1 configuration in 8255 with the relevant timing waveforms. [7M]  
(b) Describe different external interrupts in 8086 and hence explain what happens when an Interrupt occurs. [7M]
6. (a) Draw the block diagram of 8259 and explain the following [7M]  
i. IRR  
ii. ISR  
iii. IMR  
iv. Priority Resolver
- (b) Interface an ADC 0808 with 8086 using 8255 ports. Use port A of 8255 for transferring digital data output of ADC to the CPU and port C for control signals. Assume that an analog input is present of the ADC and a clock input of suitable frequency is available for ADC. Draw the interfacing diagram and write the necessary ALP to read the analog voltage and store in AL register. [7M]

### UNIT – IV

7. (a) Compare Synchronous and Asynchronous Transmission with examples. [7M]  
(b) Explain the bit configuration mode register of 8251 with the help of neat diagram [7M]
8. (a) Explain the bit configuration of command instruction of 8251. [7M]  
(b) Write a assembly language program to initialize 8251A at address 00FFH for the following specifications. [7M]  
i. Character length- 6 bits  
ii. Parity even  
iii. Baud rate 64 x  
iv. Stop bit I  
v. DTR and RTS asserted  
vi. Error flag reset  
vii. Trasmitterenable

### UNIT – V

9. (a) Differentiate the real mode and protected operation of advanced microprocessor. [7M]  
(b) With neat sketch explain the address conversion mechanism takes place in advanced microprocessor. [7M]
10. (a) Compare the features of 80286 and 80386 microprocessor. [7M]  
(b) Draw the architecture of 80386 processor and explain each block with its features. [7M]

