INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Four Year B.Tech V Semester End Examinations (Regular) - November, 2019

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) Define a microprocessor. Explain in detail the various bits of a flag register for 8086 MP. **[7M]**
   (b) Calculate the physical address is represented by
   i) 4370:561EH
   ii) 7A32:0028H **[7M]**

2. (a) Illustrate the following instructions with an example: PUSH, XCHG, IN. **[7M]**
   (b) Write an assembly language program to perform division of 00123456 H/6789 H. **[7M]**

UNIT – II

3. (a) Explain with a neat block diagram the working of 8086 in MIN mode. **[7M]**
   (b) Explain the following instructions with examples i) CMP
   ii) XCHG
   iii) PUSH
   iv) LDS **[7M]**

4. (a) Define Direct Memory Access (DMA) 8257? Describe the functionality of 8257 DMA controller with neat block diagram. **[7M]**
   (b) Write ALP to add 10 non-negative data items using string instructions. **[7M]**

UNIT – III

5. (a) Implement an assembly language program to generate a triangular waveform. **[7M]**
   (b) Illustrate the control word register formats of 8255 in I/O and BSR mode. **[7M]**

6. (a) Explain the operation of ADC interfacing with 8086 through 8255. **[7M]**
   (b) Implement an assembly language program to rotate the stepper motor in clockwise direction. **[7M]**

UNIT – IV

7. (a) Draw and explain the internal architecture of 8251 USART. **[7M]**
   (b) Explain about
   i) Command instruction format
   ii) Status Read instruction format **[7M]**

8. (a) Discuss the data transmission standards and their specifications. Compare between synchronous and asynchronous transmission. **[7M]**

(b) Draw the logic diagram to convert TTL to RS232C conversion and explain the operation briefly. **[7M]**

UNIT – V

9. (a) Explain the flag register of 80286 including machine status word. **[7M]**

(b) Explain the following signal functions of 80386.
   i) BE0-BE3
   ii) W/R
   iii) D/C
   iv) ADS
   v) NA
   vi) BS16 **[7M]**

10. (a) Define virtual memory. Discuss the real modes and virtual modes of 80386. **[7M]**

(b) Define and explain the following terms
   i) Descriptor Privilege
   ii) Selector Privilege
   iii) Task Privilege **[7M]**

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