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EX-502

B. E. (Fifth Semester) EXAMINATION, Dec., 2011

(Electrical & Electronics Engg. Branch)

MICROPROCESSOR & MICROCONTROLLER

(EX-502)

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : Attempt all the questions. All questions carry equal marks.

1. (a) Explain the role of BIU of 8086 microprocessor. 10
- (b) Compare the basic features of 8086 and 80286 microprocessors. 10

Or

- (c) Explain the functions of pin signals of 8086 microprocessor exclusively used in maximum mode of operation. 10
 - (d) Specify the following w. r. t. 8086 microprocessor : 10
 - (i) Timing diagram
 - (ii) Flag register
2. (a) Write a program in assembly language for 8086 to insert a delay of 50 msec. Assume the operating frequency 8086 is 8 MHz. 10
 - (b) What is the significance of STACK in microprocessors ?
How is it configured in 8086 microprocessor ? 10

- (c) Write a program in assembly language for 8086 to get the product of two 16-bit numbers. Draw the flowchart of program also. 10
- (d) Specify the opcode and operands of the following instructions of 8086 : 10
- (i) LOOP
 - (ii) MOV
 - (iii) ADD
 - (iv) DIV
 - (v) MUL

3. (a) How will you interface PPI 8255 to 8086 microprocessor ? Write a program for 8086 to initialize the ports of 8255. 10
- (b) Explain the different modes of operation of PPI 8255. 10

Or

- (c) It is required to interface an 8-bit ADC with 8086 microprocessor. Suggest the way with the help of neat circuit diagram indicating each signal used for the purpose. 10
- (d) Explain any *two* modes of operation of programmable timer 8254 with the help of neat waveform indicating CLK input, gate control signal and OUT signal. 10
4. (a) Explain the architecture of 8051 family microcontroller with the help of block diagram. 10
- (b) Explain memory organisation of 8051 microcontroller. 10

- (c) Write a program in assembly language for 8051 generate a pulse of 50 msec width at its one of the ports.
- (d) Differentiate the following w. r. t. 8051 :
 (i) $\overline{\text{PSEN}}$ and $\overline{\text{EA}}$
 (ii) CALL and JUMP instructions
5. (a) Explain the 'Timer' feature of 8051 microcontroller.
- (b) Explain how can you trigger an SCR using 8051 microcontroller. Write a program in assembly language for 8051.

Or

- (c) How will you interface stepper motor with 8051 microcontroller ? Write a program in assembly language to generate a sequence of pulses to run the motor.
- (d) How can you transfer data from one microcontroller to another using serial communication ? Explain.