Code No: 56012 R09

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, May - 2017

MICROPROCESSORS AND MICROCONTROLLERS

(Common to ECM, ECE, EEE, EIE)

Time: 3 hours **Max. Marks: 75**

Answer any five questions

All questions carry equal marks

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1.a) Show the memory organization of 8085 and interfacing of the 1KB memory with 8085.

b) What are the two functional units of 8086? Explain the architecture of 8086 with neat block diagram.

c) What is the purpose of READY and TRAP pins in 8085 Microprocessor? [5+7+3]

2.a) Discuss I/O map of 8086 with neat diagram.

b) Interface D to A converter DAC 0800 with 8086 running at 8 MHz and write an ALP to generate a triangular wave of 1 kHz frequency with Vmax of 5V.

c) Discuss any three assembler directives with examples. [5+4+6]

3.a) Write an 8086 assembler program to decide the parity of a given number. The given number might be a multi-byte with a maximum length of 8 bytes.

b) If the execution unit generates an effective address of 43A2H and the DS register contains 4000H. What will be the physical address generated by the BIU? What is the maximum size of the data segment?

c) Write a program with a flowchart to multiply two 16-bit numbers. [5+2+8]

4.a) Discuss the interrupt priority schemes used in 8259.

b) Discuss the priorities of DMA request inputs of 8257.

c) An 8086 system has a DMA controller 8257 interfaced such that address of its mode set register is F8H and address of its DMA address register of channel 0 is F0H.Write an Assembly language program to read 2K bytes of data from location 5000H: 2000H in the system memory

to a peripheral on channel of the DMA controller. Disable all other channels, program TC stop, no auto load is required, normal priority. [5+3+7]

5.a) Explain the mode instruction control word format of 8251.

b) Draw and discuss internal architecture of USART 8251.

c) How data is transmitted in asynchronous serial communication? [5+6+4]

6.a) Discuss the internal memory organization of 8051 microcontroller.

b) What is the importance of special function registers (SPF) in 8051?

c) Explain the arithmetic and logic instruction of 8051 microcontroller with example. [5+5+5]

7.a) Explain how serial communication is performed in 8051 microcontroller.

b) Explain how interrupts are handled in 8051.

c) Explain the modes of operation of Timer unit in 8051 Microcontroller. [5+5+5]

8.a) Can we have an AVR chip with no EEPROM?

b) What is the address range for the internal RAM?

c) What is the maximum number of bytes that the AVR can have for the data memory? [5+5+6]

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