



RM-7143

B. E. III (Sem. VI) (I.T.) Examination

May / June - 2010

Microprocessors (IT 602 IT) - I

Time : 3 Hours]

[Total Marks : 100

Instruction :

(1)

नीचे दृशवित्त निशानीवाणी विगतो उत्तरवडी पर अवश्य दधवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
<input type="text" value="B. E. 3 (Sem. 6) (I.T.)"/>	<input type="text"/>
Name of the Subject :	<input type="text"/>
<input type="text" value="Microprocessors (IT 602 IT) - 1"/>	<input type="text"/>
Subject Code No. : <input type="text" value="7"/> <input type="text" value="1"/> <input type="text" value="4"/> <input type="text" value="3"/>	Section No. (1, 2,.....) : <input type="text" value="1&2"/>
Student's Signature	

- (2) Use **separate** answer sheet for **separate** section.
- (3) Make assumption whenever required.
- (4) Number on the **right** indicate marks.

Section-I

Q -1 (a) Attempt Following

1. True/False: 8086 microprocessor is having 20 bit address bus. [1]
2. True/False: 8085 can support maximum 1 MB main memory. [1]
3. Write the full form of: MSI, SLSI, VLSI. [3]
4. Will DCX affect any Flag? (Yes/NO). [1]
5. True/False: Carry Flag will be affected by ORA instruction. [1]
6. True/False: AC flag will be affected by ADI instruction. [1]
7. True/False: CC instruction is a 3 byte instruction. [1]
8. True/False: HLT instruction takes 5 T-states for execution. [1]

(b) Write about various Read Only Memory [5]

(c) How Control Signals will be generated. Explain with diagram. [5]

Q.2 (a) Draw the timing diagram of CALL instruction. [10]

OR

(a) Draw the timing diagram of RET instruction. [10]

(b) Explain 16-bit data transfer instructions with example. [5]

- Q.3 (a)** Write a program to provide the given on/off time to three lights (Green, Yellow and Red) and two pedestrian signs (WALK and DON'T WALK). The signal light and signs are turned on/off by the data bits of an output port as shown below: [10]

Lights	Data Bits	On Time
1. Green	D0	15 seconds
2. Yellow	D2	5 seconds
3. Red	D4	20 seconds
4. WALK	D6	15 seconds
5. DON'T WALK	D7	25 seconds

The traffic and pedestrian flow are in the same direction; the pedestrian should cross the road when the Green light is on.

OR

- (a) 1. Write about various Restart instructions. [5]
 2. Write about various Conditional Return instructions. [5]
- (b) Explain various Machine Cycles of CALL instructions. [5]

Section - II

- Q.4 (a) Attempt the following** [10]

- What are various Interrupt lines in 8085?
- TRAP is a maskable interrupt. State true or false.
- What happens when HLT instruction is executed in processor?
- List the elements of 8255A (PPI)
- Specify the conditions to start the timer 8254.
- The 8085 has eight RST instructions that are equivalent to 1-byte calls to specific location on memory page 00H. (True/False)
- TRAP is a maskable interrupt. (True/False)
- How many memory locations can be addressed by a microprocessor with 14 address lines?
- Why are the PC and the stack pointer 16-bit registers?
- In the synchronous serial I/O format, all eight bytes are sent simultaneously. (True/False)

(b) Attempt the following Questions.

- In a programmable device, how does the MPU differentiate between the control register and the status register if both registers have the same port address? [2]
- Specify the handshake signals and their functions if port A of the 8255A is set up as an output port in Mode 1. [5]
- Write a note on Key Debounce. [3]

- Q.5 (a)** Explain the block diagram and the functions of each block of the 8251 USART (Programmable Communication Interface). [10]

OR

- (a) Explain the block diagram and the functions of each block of the 8279 (Programmable Keyboard/Display interface). [10]

(b) List different modes in which 8254 can operate. Explain any two of them in brief. [5]

Q.6 (a) Design a square wave generator with a pulse width of $100\mu\text{s}$ by using the 8155 timer. Set up the timer in Mode 1 if the clock frequency is 3MHz. The port addresses for the timer registers are Timer LSB 24H and Timer MSB 25H. [8]

(b) Explain the functions of 8259A interrupt controller and its operation in the fully nested mode. [7]

OR

(b) Explain the process of Direct Memory Access. Also explain 8237 DMA Controller with its internal registers. [7]