



SF-7757

B. E. - IV (Electrical) (Sem. - VIII) Examination
May/June - 2011
Advanced Microprocessor & Its Applications
(Elective)

Time : 3 Hours]

[Total Marks : 100

Instructions :

(1)

नीचे दृष्टाविवेक निशानीयाणी विगतो उतरवडी पर अवश्य लपवी. 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. - 4 (ELECTRICAL) (SEM. - 8)"/>	<input type="text"/>
Name of the Subject :	<input type="text"/>
<input type="text" value="ADVANCED MICROPROCESSOR & ITS APPLICATIONS"/>	<input type="text"/>
Subject Code No. : <input type="text" value="7"/> <input type="text" value="7"/> <input type="text" value="5"/> <input type="text" value="7"/>	<input type="text"/>
Section No. (1, 2,.....): <input type="text" value="Nil"/>	<input type="text"/>
	Student's Signature

- (2) Attempt all question.
(3) Figure to the right indicates full marks.
(4) Assume appropriate data wherever required.

- 1 (a) Fill in the following blanks : 4
- (i) When far cell instruction is executed by 8086, it pushes the content of _____ and _____ registers on stack.
- (ii) Instruction MOV AL, [BP] copies a byte into AL register from _____ segment.
- (iii) Instruction MOV AX, [BX+4] uses _____ addressing mode.
- (iv) SCASB instruction uses _____ register as a pointer in _____ segment.
- (b) Assume that the state of 8086's registers and memory 4 locations are as follows just prior to execution of ROL WORD PTR [SI], CL instruction.
- CX=0605H, DI=0500H, DS=0B00H, BX=0300H,
SI=0100H,
[DS:0100H]=99H
[DS:0101H]=88H

Compute the physical address of the destination operand of above instruction. What will be the content of the destination memory location after execution of above instruction ?

- (c) Explain EQU directive. 2
- (d) Write equivalent string instructions for performing following operation : 2
- ```

MOV CX, 10
AGAIN : MOV AL, [SI]
 MOV [DI], AL
 DEC SI
 DEC DI
 LOOP AGAIN

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- (e) Check if the following instruction statements are true or false. If false, suggest the correction. 4
- (i) MOV DS, 1234H
- (ii) ROL AL, 04
- (iii) MOV [SI], [BX]
- (iv) CMP BYTE PTR [SI], CX
- (f) Explain difference between macro and procedure. 4
- 2** (a) Write an 8086 assembly language program that accepts two decimal numbers (in the range 00-99) and one operator ('+', '-', '\*', '/') from the user, performs the operation on the two numbers as per the operator entered by user and then displays the decimal result of operation on screen. 10
- Make use of macro and procedure for different task to be performed.
- (b) Write an 8086 assembly language program that accept a two digit decimal number from the keyboard, checks it for positive or negative and displays the corresponding message POSITIVE NUMBER or NEGATIVE NUMBER on the screen. 5

**OR**

- 2** (a) Write an 8086 assembly language program to check whether string entered by user is palindrome or not. Display the result on screen (palindrome/not palindrome). Palindrome string is the one which read from either side is same. 9

- (b) Write an 8086 assembly language program to convert decimal number stored in memory to corresponding common cathode seven segment code using lookup table stored in DS. Store the converted number in memory. **6**
- 3** Attempt any **three** : **15**
- (a) Explain in brief about various assembly language software development tools.
- (b) Explain PUBLIC, EXTRN and GLOBAL directives used for multi-module programming.
- (c) Write an 8086 assembly language program to reverse an array of ten words stored in memory in at the same memory location.
- (d) Write an 8086 assembly language program to display a message " Happy New Year" on the screen after user presses 'Z' key.
- (e) Write a delay procedure to generate the delay of 0.5 sec and using it write a program that blinks two LED's connected with D0 and D1 pin of port FFFAh alternately with 0.5 sec ON/OFF time.
- 4** (a) Explain the functions of following pins of 8086 MPU. **4**  
 (i) BHE (ii) TEST
- (b) Explain the functionality of the following registers in 8086. **4**  
 (i) ES (ii) CX
- (c) Describe the function of 8086 queue. **5**
- (d) Explain the functionality of 'D' flag of 8086. **2**
- (e) Explain segmented memory architecture of 8086 in detail. **5**

**OR**

- 5** (a) Why wait state generator is needed ? Explain the operation of wait state generator with its associated circuitry. **8**

- (b) Draw data word format of asynchronous serial communication. A terminal is transmitting asynchronous serial data at 2400-baud rate. What is its bit time ? Assuming 7 data bit, a parity bit and one stop bit, how long does it take to transmit 5 characters ? 3
- (c) Explain synchronous and asynchronous serial communication. 4

**OR**

- 5 (a) Draw an interfacing scheme to interface 16 key matrix keyboard using 8255 port A and explain the logic to check key press. 8
- (b) Explain and write all four ICWs of 8259 considering two cascaded PICs. 7
- 6 Attempt any **three** : 15
- (i) Explain mode-3 operation of 8254 along with its control word format.
- (ii) Draw and explain block diagram of 8259 chip.
- (iii) Compare PROM decoder with conventional decoder using example.
- (iv) List and describe the steps an 8086 will make when it responds to type-0 interrupt.
- (v) Describe the response an 8086 will make if it receives an NMI interrupt signal during a division operation which produces a divide by zero interrupt.
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