

KATHMANDU UNIVERSITY  
End Semester Examination  
March/April, 2017

Marks Scored:
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Level : B.E.

Course : EEG 314

Year : III

Semester : I

Exam. Roll No. :

Time: 30 mins.

F. M. : 20

Registration No.:

Date MAR 26 2017

SECTION "A"  
[20 Q × 1 = 20 marks]

Encircle the most suitable answer to the following questions:

1. Program Counter is a \_\_\_\_\_ bit register for Intel 8085.  
a) 16                      b) 8                      c) 10                      d) 24
2. \_\_\_\_\_ Signal is used to de-multiplex a bus.  
a) WR                      b) RD                      c) INTR                      d) ALE
3. \_\_\_\_\_ is the MSB for an 8 bit DAC for the 0 to 10 V range.  
a) 4                      b) 5                      c) 9                      d) 2
4. The CPU sends out a \_\_\_\_\_ signal to indicate that valid data is available on data bus.  
a) read                      b) write                      c) ALE                      d) INTR
5. NMI is a \_\_\_\_\_ interrupt, for Intel 8086.  
a) Type 0                      b) Type 1                      c) Type 2                      d) Type 3
6. \_\_\_\_\_ Segment registers need to be initialized in an 8086/88 assembly program.  
a) CS and DS                      b) DS and ES                      c) DS and SS                      d) CS and SS
7. 8086 has \_\_\_\_\_ bit physical address.  
a) 8                      b) 16                      c) 20                      d) 24
8. Which of the following logic instructions can be used to complement a specific bit using a mask.  
a) AND                      b) OR                      c) XOR                      d) NOT
9. Data storage in stack is designed in \_\_\_\_\_ method.  
a) FIFO                      b) LILO                      c) FILO                      d) LIFO
10. IN FFH is a \_\_\_\_\_ byte instruction.  
a) 1                      b) 2                      c) 3                      d) 4
11. Which among these memory types cannot be re-written after once.  
a) PROM                      b) EPROM                      c) EEPROM                      d) EAROM
12. \_\_\_\_\_ Instruction is used to load data from memory location into accumulator.  
a) MOV A, M                      b) STA 2000 H                      c) LDA 2000 H                      d) MOV M, A



Level : B.E.  
Year : III  
Time : 2 hrs. 30 mins.

Course : EEG 314  
Semester : I  
F. M. : 55

SECTION "B"

- ✓ Attempt ANY FIVE questions
- ✓ Assume any suitable data if necessary
- ✓ Figures in margin indicate full marks for each questions

1.
  - a) Explain the Intel 8085 microprocessor architecture and its operation. [4]
  - b) Design an interfacing circuit for the MCTS memory and find the addressing range of EPROM and CMOS R/W memory using listed components: i) 74LS138 (3 to 8 decoder) ii) 2732 (4K × 8): EEPROM iii) 6116 (2K × 8) : CMOS R/W memory. [5]
  - c) Write a program to read two numbers from memory location XX20 and XX21 respectively and store the sum in memory location XX22. [2]
2.
  - a) Explain the machine cycle of **OUT 01 H** when it is executed? [5]
  - b) Design a seven segment LED output port with the device address F5H, using a 74LS138 3-to-8 decoder, a 74LS20 4-input NAND gate, a 74LS02 NOR gate and a common anode seven segment LED.
    - i. Given  $\overline{WR}$  and  $IO/\overline{M}$  signals from the 8085, generate the  $\overline{IOW}$  control signal.
    - ii. Explain the binary codes required to display 0 to F hex digits at seven segment display.
    - iii. Write instructions to display digit 7 at the port. [6]
3.
  - a) Define STACK. Explain the program execution and its data transfer process for CALL instruction. [4]
  - b) How can vectored interrupts be read using SIM Instructions? [3]
  - c) Define Counter and give an example of time delay using a register pair? [4]
4.
  - a) Convert an analog input of  $V_{in} = 3.4$  V into digital output using a 8 bit Successive Approximation Register, given the full scale voltage = 5V. [4]
  - b) A 12 bit D/A converter is calibrated over the range 0 to 10V Calculate the outputs if the input is 20H and 82H. [2]
  - c) Design an interfacing circuit of 8 bit A/D Converter using status check and explain its operation with program? [5]
5.
  - a) Determine the address of control register, I/O ports and timer registers for interfacing 8155 programmable device. Write initialization instructions to display data bytes in two seven segment LED displays at PORT A and B. [6]
  - b) Explain Data Input Handshake Mode for 8155 programmable device with timing diagram. [5]
6.
  - a) Draw the internal block diagram of Intel 8086 microprocessor and explain its major components. [5]
  - b) A set of ten BCD readings is stored in the Input Buffer. Write a program to convert the numbers into binary and add the numbers. Store the sum in the Output Buffer. Also draw the flow chart for the program. [6]

