KADI SARVA VISHWAVIDYALAYA
B.E. SEMESTER 5th EXAMINATION NOVEMBER-2016

SUBJECT CODE: EE-503 SUBJECT NAME : MICROPROCESSOR AND INTERFACING

DATE: 15/11/2016 TIME: 10.30 AM to 01.30 PM TOTAL MARKS: 70

Instructions :

1. Answer each section in separate Answer Sheet.
2. Use of Scientific Calculator is permitted.
3. All questions are compulsory.
4. Indicate **Clearly**, the options you attempted along with its respective question number.
5. Use the last page of main supplementary for rough work.

Section-1

Q.1 **All Questions Compulsory.**

(A) **Multiple Choice Questions.** **05**

1. What is the value of clock period if clock frequency is 2 M Hz?
   A. 0.5 μs B. 2 μs C. 0.5 μs D. 5.0 μs
2. How many address lines are required for an 8K-byte memory chip?
   A. 12 B. 13 C. 10 D. 8
3. How many Byte instructions are used for JMP instruction?
   A. 1 B. 2 C. 3 D. 0
4. Which instruction is not a part of a logical instructions?
   A. CMA B. CALL C. RLC D. RAL
5. Which device is used for Serial I/O communication?
   A. 8255 B. 8279 C. 8251A D. 8254

(B) Draw only Architecture of 8085 Microprocessor. **05**

(C) What is an Interrupt? Explain the interrupts in the 8085 microprocessor. **05**

OR

(C) Draw & Explain Flag Register of 8085 Microprocessor. **05**

Q.2 **Answer the following Question.**

(A) Explain Addressing Modes of 8085 Microprocessor with Suitable Example. **05**

(B) Draw only timing diagram of instruction MVI A, 32H. **05**

OR

Q.2 (A) Short note on: Memory Classification of 8085 Microprocessor. **05**

(B) Explain Demultiplexing of AD0 to AD7 using 74LS373 Latch. **05**

Q.3 **Answer the following Question.**

(A) Comparison between SID and SOD. **05**

(B) Explain the function of all the 40 pins of 8085 microprocessor. **05**

OR

Q.3 (A) Explain the all the registers of 8085 microprocessor in detail. **05**

(B) Compare Memory mapped I/O and Peripheral mapped I/O. **05**

Section-2

Q.4 **All Questions Compulsory.**

(A) Difference between RIM and SIM Instruction. **05**

(B) What is A-to-D conversion? Explain with Successive Approximation Method. **05**

(C) Draw and Explain Block diagram 8259A (Programmable Interrupt Controller). **05**

OR

(C) What is Subroutine? Explain CALL and RET Instruction with Suitable Example. **05**

Q.5 **Answer the following Questions.**

(A) Explain Following Pins of 8085 Microprocessor. **05**

1. HOLD **2.** ALE **3.** TRAP **4.** READY **5.** X1 & X2

(B) Write a Program to multiply two 8 bit numbers are stored in memory locations 8100 and 8101 and the results are stored in memory locations 8200 and 8201. **05**

OR

Q.5 (A) Explain Following Instruction of 8085 Microprocessor. **05**

1. MOV A, M **2.** LDA 2050H **3.** PCHL **4.** INX H **5.** JMP 2050H

(B) Write a program to 16 Bytes of data are stored in memory locations at XX50H to XX5FH. Transfer the entire block of data to new memory locations starting at XX70H. **05**

Q.6 **Answer the following Questions.**

(A) Draw and Explain Block Diagram of 8279 (Keyboard & Display Interface) **05**

(B) Draw block diagram the function of 8253/8254 programmable interval timer and explain. **05**

OR

Q.6 (A) Explain Serial Communication with USART. **05**

(B) Explain different code conversion of 8085 microprocessor. **05**

----- All the Best -----

KADI SARVA VISHVAVIDYALAYA

B.E. SEMESTER V EXAMINATION (April/2015)

SUBJECT CODE: EE-503 **SUBJECT NAME:** Microprocessor and Interfacing

DATE: 22/04/2015 **TIME:** 10:30 to 1:30 **TOTAL MARKS:** 70

Instructions:

1. Answer each section in separate answer sheets
2. Use of scientific Calculator is permitted
3. All questions are compulsory
4. Indicate clearly the options you attempted along with the respective question number.
5. Use the last page of your supplementary for rough work

Section – I

Q-1	**Answer the following questions**	
A	Define its function. (1) ALE (2) HOLD (3) SID (4) READY (5) TRAP	5
B	Explain the RAL instructions of 8085 and its effect on Flags	5
C	What is meant by Bus? Why is the address bus unidirectional and the data bus bidirectional?	5
	OR	
C	Explain (i) LXI (ii) TRAP	5
Q-2	**Answer the following questions**	
A	Draw the functional block diagram of internal architecture of IC 8085.	5
B	Discuss in detail memory mapped I/O and I/O mapped I/O.	5
	OR	
A	Explain the execution of the instruction STA 2050H with neat timing diagram.	5
B	Write a program to multiply two unsigned numbers stored in register pair H and L, save the result in accumulator.	5
Q-3	**Answer the following questions**	
A	What is stack pointer? Explain working of POP instruction with suitable example	5
B	Write a detailed note on Interrupts of 8085.	5
	OR	
A	Discuss in detail different working modes of IC 8254	5
B	With neat diagram discuss the working of IC 8259A---Programmable interrupt controller.	5

Section – II

Q-4	**Answer the following questions**	
A	Explain (i) CMP (ii) LDA 2040H	5
B	Explain (i) INTR (ii) ALE	5
C	Write a program to load two unsigned numbers 42H and 67H respectively in register B and register C. Subtract C from B. if the result is in 2' complement, convert the result in absolute magnitude and display it at PORT1.otherwise display the positive result.	5
	OR	
C	Draw the functional block diagram of IC 8255A	5
Q-5	**Answer the following questions**	
A	Explain the timing diagram of the memory write cycle	5
B	Using diagram illustrate logic pin out of the 8085 Microprocessor.	5
	OR	
A	Illustrate the steps and the timing of data flow when the instruction code 0100 1111 (4FH –MOV C,A), stored in location 2005H, is being fetched.	5
B	Write a program to count continuously in hexadecimal from FFH to 00H in a system with a clock period of 0.5 μs. Use register C to set up 1 millisecond delay between each count and display the number at the output port1.	5
Q-6	**Answer the following questions**	
A	Enlist different operating modes of IC 8255A. Explain any one?	5
B	Compare Call and jump instruction with appropriate example.	5
	OR	
A	Compare serial and parallel data transfer.	5
B	Write a program for 8085 to generate a square wave with period of 400μs. Use bit D0 to output the square wave. The system clock period is 325ns.	5

**********ALL THE BEST**********

KADI SARVA VISHWAVIDHYALAYA

B.E. Semester V

Subject Code:-EE-503 **Subject Name:-**Microprocessor and Interfacing

Date:-18/11/2014 **Time:-**10:30 a.m TO 1:30 p.m **Total Marks** - 70

Instructions:

1. Answer **each section** in separate answer sheet.
2. Use of scientific calculator is **permitted**.
3. All the questions are **compulsory**.
4. Indicate **clearly**, the options you attempt along with its respective question number.
5. Use the last page of main supplementary for rough work.

Section-I

Q-1. Answer the following questions.

(A) (i) What is bus? Why is address bus unidirectional and data bus bidirectional? [2]
(ii) How many memory locations can be addressed with 14 address line? [1]
(iii) What is the memory word size required in an 8085 system? [1]
(iv) Define nibble. [1]

(B) (i) Classify Memory. [3]
(ii) Specify the crystal frequency required for an 8085 system to operate at 1.1MHz. [2]

(C) Explain architecture of 8085 microprocessor with help of block diagram. [5]

OR

(C) Mention the function of following pins. [5]
(1) ALE (2) HOLD (3) SID (4) READY (5) TRAP

Q-2 Answer the following questions.

(A) Explain various operating modes of 8255A. [5]

(B) What is interfacing? How is it done? State the significance of a control word. [5]

OR

(A) Sketch the bus structure of microprocessor and explain data, address and control bus. [5]

(B) Explain how address/data lines AD0-AD7 are de-multiplexed. [5]

Q-3 Answer the following questions.

(A) (i) Explain memory interfacing in brief. [3]
(ii) Explain the function of RIM and SIM instructions [2]

(B) How many times the given loop will be executed? What will be the contents of HL pair when the program control reaches to HLT instruction? [5]

```
        MVI A, 00h
        LXI H, 5003H
Loop:   DCX H
        DCR A
        JNZ loop
        HLT
```

OR

(A) Draw and explain the logical block diagram of the 8253. **[5]**

(B) Draw the functional block diagram of IC 8255 and discuss control word format. **[5]**

Section – II

Q-4. Answer the following questions.

(A) Draw and explain programming model of 8085 microprocessor. Explain working of 16 bit registers. **[3]**

(B) Point out **valid and invalid** instructions. **Correct** the invalid ones. **[5]**
(i)MVI AB (ii) LDA BD (iii) MOV 05 (iv) ADD A,B (v) STA C

(C) (1) Write a program to move a block of data from one section of memory to another section of memory **[4]**
(2) What is an input port and an output port? **[1]**

OR

(C) (1) Write a program to add series of a numbers, the answer may be 16-bit. **[4]**
(2) What is A-to-D conversion? How does it happen? **[1]**

Q-5 Answer the following questions.

(A) Give the control word of 8255 and explain the mode 1 Input operation in detail. **[5]**

(B) Explain with block diagram the function of 8254 programmable interval timer. **[5]**

OR

(A) Draw logic diagram to generate control signals $\overline{MEMR}$, $\overline{MEMW}$, $\overline{IOW}$ and $\overline{IOR}$ from IO/$\overline{M}$,$\overline{WR}$ and $\overline{RD}$. **[5]**

(B) What are interrupts? List and explain the interrupt available in microprocessor 8085. **[5]**

Q-6 Answer the following questions.

(A) Draw and explain the logical block diagram of the 8251 with functions of each block. **[5]**

(B) Draw logic block diagram of the 8279 and explain major section of it. **[5]**

OR

(A) State the function of following instructions. **[5]**
(i) XCHG (ii) XTHL (iii) DAD H (iv) CMA (v) RRC

(B) (i) What is the purpose of HOLD and HLDA pin in 8085 microprocessor? **[3]**
(ii) Distinguish between LXIH 1234H and LHLD 1234H. **[2]**

********** *ALL THE BEST* **********