

Name:	
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2018

Course: ELEG321 **Semester: 5th**
Programme: B.Tech Electronics/IOT/BBCT
Time: 03 hrs. **Max. Marks: 100**
Instructions: Answer any four questions from section B and any two questions from section C

SECTION A

S. No.		Marks	CO
Q 1	Specify the number of registers in a 2k Memory chip. List the four categories of 8085 instructions that manipulate data	05	CO1
Q2	Explain the operation of bidirectional buffer 74LS245	05	CO1
Q3	If the 8085 adds 87 h and 79 h, specify the contents of the accumulator and the status of the S,Z, CY flags. In the opcode fetch cycle, what are the control and status signals asserted by the 8085 to enable the memory buffer	05	CO2
Q4	Assume that the 8085 is completing an RST7.5 interrupt request, check to see if RST 6.5 is pending. If it is pending, enable 6.5 without effecting any other interrupts; otherwise return to main program	05	CO3

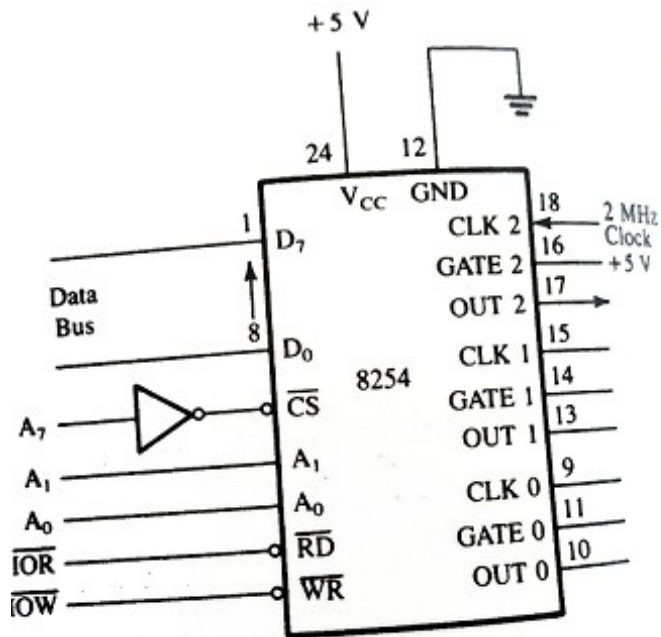
SECTION B

Q5	Design a interfacing circuit for memory device showing clearly the address decoding scheme and control signals for generating an address range of 8800h to 8FFFh. You can select any memory device with chip select and output enable line for your design.	10	CO4
Q6.	Draw the timing diagram of the instruction, 2000 STA 2050 h	10	CO3
Q7	A binary number is stored in memory location 2050h. write a program with subroutines to convert the number into BCD and store each unpacked BCD digits in the output buffer.	10	CO2
Q8	Explain the operation of 8259A programmable interrupt controller	10	CO4
Q9	Explain with the help of block diagram the operation of multi purpose programming device 8155	10	CO4

SECTION-C

Q 10(a)	Explain with the help of logic block diagram the operation of programmable keyboard/display interface, 8279	8	CO3
(b)	Write a program to transmit an ASCII character, stored in register Busing the SOD line as a 1 bit output port.	12	CO4
11	Consider the following interfacing diagram of 8254 with the 8085. Identify the port addresses of the control register and counters. Write instructions to generate a pulse every	20	CO3,C O4

100 microseconds from counter 0. Also write instructions to generate an interrupt every 0.5 sec.



12 Design an interfacing circuit for interfacing keyboard in the input port of 8085 and a printer in the output port of 8085 using 8255 in mode 1. the address decoding should be such that the port addresses are FC, FD,FE respectively for port A,B and C and that of control register is FF.The keyboard is connected to port A and the printer is connected to port B. Determine the BSR word to enable $INTE_A$. Determine the masking byte to verify the OBF_B line in the status check I/O. Write initialization instructions and printer subroutine to output characters that are stored in memory.

20

CO3,C
O4

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SECTION A

S. No.	Question	Marks	CO
Q 1	Calculate the number of registers in a 64k memory board .Define opcode and operand	05	CO1
Q2	Explain the operation of 3 to 8 decoder 74LS 138	05	CO1
Q3	Calculate the number of memory chips needed to design 8k memory if the memory chip size is 1024x1. specify the control signal and the direction of data flow on the data bus in a memory write operation	05	CO3
Q4	Assume that the 8085 is completing an RST7.5 interrupt request, check to see if RST 6.5 is pending. If it is pending, enable 6.5 without effecting any other interrupts; otherwise return to main program	05	CO3

SECTION B

Q5	Identify the machine cycles of the following instructions : SUB B, ADI 47 h, STA 2050 h , PUSH B	10	CO2
Q6.	Draw the timing diagram of the instruction , 2000 IN 01 h	10	CO3
Q7	A 8 bit binary number is stored in memory location 2050h. write a program to convert the number into ASCII Hex code.	10	CO2
Q8	Write a Program to count continuously in hexadecimal form from FF to 00 h in a system with a 0.5 microsecond clock period. Use a delay of 1 millisecond between each count	10	CO2
Q9	Explain with the help of block diagram the operation of Programmable Interval timer 8254	10	CO3,C O4

SECTION-C

Q 10(a)	Explain with the help of logic block diagram the operation of programmable keyboard/display interface ,8279	8	CO4
(b)	Write a program to transmit an ASCII character ,stored in register Busing the SOD line as a 1 bit output port.	12	CO3,C O4
11	8255 is being used in BSR mode for setting and resetting the bits of port C. peripheral based I/O scheme is being used. Find the port addresses and control register addresses if A2-A7 of 8085 are connected to the input of NAND gate whose output is connected to the chip select pin of 8255. Write a BSR control word subroutine to set bits PC7 and PC3 and reset then after a delay 10 ms. Assume that delay subroutine is available. Design a interfacing circuit of 8085 with 8051 for transmitting characters in asynchronous	20	CO3,C O4

	mode with 9600 baud , character length =seven bits and two stop bits, no parity check and the transmitter clock frequency 153.6 Khz .		
12	Design an interfacing circuit for interfacing keyboard in the input port of 8085 and a printer in the output port of 8085 using 8255 in mode 1. the address decoding should be such that the port addresses are FC, FD,FE respectively for port A,B and C and that of control register is FF.The keyboard is connected to port <u>A</u> and the printer is connected to port B. Determine the BSR word to enable $INTE_A$. Determine the masking byte to verify the OBF_B line in the status check I/O. Write initialization instructions and printer subroutine to output characters that are stored in memory.	20	CO3,C O4