INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)
Dundigal, Hyderabad - 500 043
ELECTRICAL AND ELECTRONICS ENGINEERING

ASSIGNMENT QUESTIONS

Course Name	:	MICROPROCESSOR AND INTERFACING DEVICES
Course Code	:	A60430
Class	:	III B. Tech II Semester
Branch	:	Electrical and Electronics Engineering
Year	:	2017-2018
Course Faculty	:	Mr.R.Mahendhar Reddy, Assoc. Prof, Dept of ECE

OBJECTIVES

To meet the challenge of ensuring excellence in engineering education, the issue of quality needs to be addressed, debated and taken forward in a systematic manner. Accreditation is the principal means of quality assurance in higher education. The major emphasis of accreditation process is to measure the outcomes of the program that is being accredited.

In line with this, Faculty of Institute of Aeronautical Engineering, Hyderabad has taken a lead in incorporating philosophy of outcome based education in the process of problem solving and career development. So, all students of the institute should understand the depth and approach of course to be taught through this question bank, which will enhance learner's learning process.

S.NO	QUESTION	BLOOMS TAXONOMY	PROGRAM OUTCOMES
	UNIT – I 8086 ARHITECTURE		
1	Define Microprocessor and draw the pin diagram of 8086	Remember	1
2	List out few applications of microprocessor-based system.	Remember	1
3	State the difference between 8085 & 8086 microprocessor.	Remember	1
4	Discuss about Instruction Prefetch Queue.	Understand	
5	Explain 8086 internal architecture	Understand	1
6	Describe the flag register of 8086.	Understand	1
7	Discuss how physical address is calculated in 8086.	Understand	
8	Evaluate the physical address, if base address is 5200H & offset address is 4510H.	Remember	1
9	Explain the physical memory organization of 8086.	Understand	1
10	Discuss memory segmentation & mention its advantages.	Understand	1
11	Explain the read & write timing diagrams for maximum & minimum mode configurations.	Understand	1
12	Describe the interrupts of 8086.	Understand	1
13	The register contents of 8086 are given below. CS = 5000H, DS = 8000H, SS = A000H, ES = B000H, SI = 2000H, DI = 6000H, BP = 1002H, SP = 0002H, AX = 0000H, BX = 5200H, CX = 2000H. Calculate the effective Address & physical address of the following instructions. (a) IMUL AX, [BP + BX – 8D] (b) SBB AL, ES:[SI + 5D]	Understand	1

<table>
<tr><td colspan="4" align="center">**UNIT – II**
INSTRUCTION SET AND ASSEMBLY
LANGUAGE PROGRAMMING OF 8086</td></tr>
<tr><td>**S.NO**</td><td align="center">**QUESTION**</td><td>**BLOOMS TAXONOMY**</td><td>**PROGRAM OUTCOMES**</td></tr>
<tr><td>1</td><td>Define addressing mode? Write the names of 8086 addressing modes</td><td>Knowledge</td><td>2</td></tr>
<tr><td>2</td><td>Explain the instructions formats in 8086.</td><td>Understand</td><td>3</td></tr>
<tr><td>3</td><td>Discuss the following instructions of 8086.
a) ADC b) AAS c) IMUL d) CBW e) XLAT f)STOSB.</td><td>Understand</td><td>3</td></tr>
<tr><td>4</td><td>Explain RCL,DAA,SAR instructions of 8086</td><td>Understand</td><td>3</td></tr>
<tr><td>5</td><td>Explain PUSH & POP instructions.</td><td>Understand</td><td>3</td></tr>
<tr><td>6</td><td>List the examples for the following assembler directives.
a) ASSUME b) ENDS c) PUBLIC d)EXTRN</td><td>Understand</td><td>3</td></tr>
<tr><td>7</td><td>Illustrate the difference between inter segment & intra segment jumps.</td><td>Understand</td><td>5</td></tr>
<tr><td>8</td><td>Write a program to moving a string from one location to other location.</td><td>Understand</td><td>5</td></tr>
<tr><td>9</td><td>Write a program to add two ASCII numbers.</td><td>Understand</td><td>5</td></tr>
<tr><td>10</td><td>Write an ALP for add a 5-byte number in one array to a 5 byte in another array. Put the sum in another array. Put the state of the carry flag in byte 6 of the array that contains the sum. The first value in each array is the least significant byte of that number.</td><td>Understand</td><td>5</td></tr>
<tr><td>11</td><td>Write a delay loop which produces a delay of 500µsec on an 8086 with 5-MHz clock.</td><td>Understand</td><td>5</td></tr>
<tr><td>12</td><td>Write an ALP to convert a given sixteen bit binary number to its Gray equivalent.</td><td>Understand</td><td>5</td></tr>
<tr><td colspan="4" align="center">**UNIT – III**
I/O INTERFACE</td></tr>
<tr><td>**S.NO**</td><td align="center">**QUESTION**</td><td>**BLOOMS TAXONOMY**</td><td>**PROGRAM OUTCOMES**</td></tr>
<tr><td>1</td><td>Explain why I/O interface required for 8086.</td><td>Understand</td><td>3</td></tr>
<tr><td>2</td><td>List out the features of the 8255(PPI).</td><td>Remember</td><td>7</td></tr>
<tr><td>3</td><td>Explain BSR mode of operation.</td><td>Understand</td><td>7</td></tr>
<tr><td>4</td><td>Write the control word format for I/O mode.</td><td>Remember</td><td>7</td></tr>
<tr><td>5</td><td>Calculate the control port address of 8255 if the base address is FFF0H.</td><td>Understand</td><td>7</td></tr>
<tr><td>6</td><td>Discuss how a 4×4 key board matrix is connected to 8255.</td><td>Understand</td><td>3</td></tr>
<tr><td>7</td><td>Explain how a stepper motor is interfaced to 8086.</td><td>Understand</td><td>3</td></tr>
<tr><td>8</td><td>Describe the architecture of 8255 & explain.</td><td>Understand</td><td>3</td></tr>
<tr><td colspan="4" align="center">MIDTERM-II</td></tr>
<tr><td>9</td><td>Write short notes on 5 types of interrupts supported by 8086.</td><td>Remember</td><td>9</td></tr>
<tr><td>10</td><td>Explain the interfacing diagram of 8255 with 8086.</td><td>Understand</td><td>3</td></tr>
<tr><td>11</td><td>Explain the internal architecture of 8259 PIC with a neat block</td><td>Understand</td><td>3</td></tr>
<tr><td></td><td>Explain the internal architecture of 8257 DMA controller with a</td><td>Understand</td><td>3</td></tr>
<tr><td>12</td><td>Distinguish the difference between Maskable and Non-Maskable interrupts.</td><td>Understand</td><td>4</td></tr>
<tr><td>13</td><td>Define DOS interrupts. Give two examples.</td><td>Understand</td><td>4</td></tr>
<tr><td>14</td><td>Interface two 4k×8 EPROMS & and two 4k×8 RAM chips with 8086. Select suitable memory map.</td><td>Understand</td><td>4</td></tr>
<tr><td>15</td><td>Explain about the programmed I/O & interrupt driven I/O.</td><td>Understand</td><td>4</td></tr>
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UNIT –IV
Communication Interface

S.No	QUESTION	BLOOMS TAXONOMY	PROGRAM OUTCOMES
1	List out the features of 8251(USART).	Remember	6
2	List out the serial communication standards available.	Remember	6
3	Write the most commonly used signals in RS232.	Remember	6
4	Describe and sketch the frame format of mode word of 8251	Understand	6
5	Distinguish between synchronous and asynchronous serial data transmission techniques.	Understand	6
6	Define Baud rate.	Remember	6
7	Draw the internal block diagram of 8251 and explain about each block in detail.	Understand	9
8	Discuss how 8251 is used for serial communication of data.	Understand	9
9	Explain the advantages of using the USART chips in microprocessor based systems.	Understand	9
10	Explain the pin structure of RS232C & also discuss about voltage & current specifications of RS 232C.	Understand	9

UNIT – V
Introduction to Microcontrollers

S.NO	QUESTION	BLOOMS TAXONOMY	PROGRAM OUTCOMES
1	Discuss the register set of 8051 and also discuss how memory and I/O addressing is done in 8051.	Understand	11
2	Discuss internal architecture of 8051 microcontroller in detail.	Understand	11
3	Describe the five addressing modes of 8051 microcontroller with example.	Understand	11
4	Sketch and illustrate how to access external memory devices in an 8051 based system.	Understand	11
5	Discuss the internal memory organization of the 8051 microcontroller.	Understand	11
6	Design an 8051 based system with 16 K bytes of program ROM and 16 K bytes of data ROM.	Understand	11
7	Discuss about the memory organization and special function registers in 8051 microcontroller.	Understand	11
8	Describe the operation of I/O ports in 8051 with neat sketch.	Understand	13
9	Demonstrate the functioning of A & B registers of 8051.	Remember	13
10	List the format of PSW register of 8051 and explain each bit.	Remember	13
11	Discuss the register set of 8051 and also discuss how memory and I/O addressing is done in 8051.	Understand	11

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