UNIVERSITY OF THE PUNJAB

Third Semester 2012
Examination: B.S. 4 Years Programme

Roll No. 1997

PAPER: Computer Organization and Assembly Langunge **TIME ALLOWED: 2 hrs. & 30 mins.**
Course Code: IT-21402 **MAX. MARKS: 60**

Attempt this Paper on Separate Answer Sheet provided.

Part-II (Short Questions)

QUESTION # 2 [30 marks]

1. What is an Assembler?
2. What is the difference between low level and high level languages?
3. What is the difference between real and protected mode?
4. How does a logical address translated into a physical address in intel 8086?
5. Why do we use segment registers?
6. Briefly describe the purpose of BYTE, WORD, and DWORD directives.
7. Briefly describe the purpose of MUL, XCHG and SUB instructions.
8. What is the difference between PROC and MACRO?
9. Briefly describe the purpose of XOR, NOT and SHL instructions?
10. What is the difference between SHR and ROR?

Part-III (Subjective)

QUESTION # 3 [10 marks]

What is an addressing mode? What are different addressing modes available in intel 8086?

QUESTION # 4 [10 marks]

Write an assembly language program that prompt to the user to enter two decimal digits whose sum is less than 20 and then display their sum on the next line. You are required to implement proper checks so that only valid numbers can be input.

QUESTION # 5 [10 marks]

Write an assembly language program that input a number from keyboard in binary form and then displays it in hexadecimal form. Impose proper checks for valid input and output.

UNIVERSITY OF THE PUNJAB

Third Semester 2014
Examination: B.S. 4 Years Programme

Roll No. .....

PAPER: Computer Organization and Assembly Language
Course Code: IT-203 / IT-21402

TIME ALLOWED: 2 hrs. & 30
MAX. MARKS: 50

Attempt this Paper on Separate Answer Sheet provided.

PART- II

Question # 2: [2 x 10 = 20]

1. What is an Assembler?
2. What is the purpose of Zero and Carry flags?
3. Why do we use segment registers?
4. Define LEA instruction with example.
5. What is the difference between NEAR and FAR procedures?
6. Convert A000:23CD into absolute address
7. What is the difference between real and protected mode?
8. Briefly describe the purpose of BYTE, WORD, and DWORD directives.
9. Briefly describe the purpose of MUL, XCHG and SUB instructions.
10. What is the difference between a PROC and a MACRO?

PART- III

Question # 3. [10]

Write an assembly language program that reads five numbers from keyboard and then displays the maximum and minimum number on the screen. Your program should implement proper checks that only a number can be input.

Question # 4: [10]

Write an assembly language program that reads ten alphabets from keyboard and determines that how many of them are vowels Your program should also display the count of vowels and consonants. Your program should implement proper checks that only an alphabet can be input.

Question # 5: [10]

What will be the hexadecimal value of the destination operand after each of the following MOV instructions? (If any instruction is Illegal then write the word ILLEGAL as the Answer)

Serial#	Instruction	Values Before		Value After
1	MOV DX, CX	CX = 9234	DX = 7654	DH =
2	MOV AX, [234]	AX = A3B5		AL =
3	MOV BX, SI	SI = ABDE		BH =
4	MOV DS, CS	DS = A456	CS = B890	DS =
5	MOV DS, AX	DS = FBE2	AX = CDEF	AX =
6	MOV VAR1, AL	VAR1 = 22	AX = 6754	VAR1 =
7	MOV VAR1, VAR2	VAR1 = CD	VAR2 = AB	VAR1 =
8	MOV AL, AH	AX = DE34		AX =
9	MOV CL, SI	CX = 2345	SI = A0CF	CL =
10	MOV CS, CX	CS = 0200	CX = 0A00	CS =

Variable VAR1 and VAR2 both are 8-bits long. All numbers are in Hexadecimal formal

UNIVERSITY OF THE PUNJAB

Third Semester 2013
Examination: B.S. 4 Years Programme

Roll No. .....

PAPER: Computer Organization and Assembly Language
Course Code: IT-21402 / IT-203

TIME ALLOWED: 2 hrs. & 30 mins.
MAX. MARKS: 50

Attempt this Paper on Separate Answer Sheet provided.

Part-II (Short Questions)

QUESTION # 2 [30 marks]

1. Write an assembly language instruction to declare a variable that can contain a number not greater than 65535.
2. Write an assembly language instruction to declare a variable which is big enough to move to AL register.
3. Write an assembly language instruction that take 2's complement of E230 (hexadecimal value).
4. Write an assembly language instruction that clears all the bits of DL register.
5. Suppose SP=0200h; top of stack =012Ah. What are the contents of IP and SP after RET instruction is executed.
6. Assume SI=0100, DI=0300; CX=0007. Assume Direction flag is set. What would be the contents of SI, DI and CX after the execution of instruction LODSB twice?
7. What is difference between a Procedure and Macro? Which one is more space efficient?
8. How does a logical address translated into a physical address in intel 8086?
9. Why do we use segment registers?
10. What is the purpose of EQU, OFFSET, and .Data directives?

Part-III (Subjective)

QUESTION # 3 [10 marks]

How will you perform the following tasks by using either logical or shift instructions?

1- To clear the contents in AX register.
2- To Multiply a signed value in DX register by 16.
3- To Divide an unsigned value in CX register by 8.
4- To jump a to a label "NEGATIVE" if AL contains a negative number.

QUESTION # 4 [10 marks]

Write an assembly language program that prompt to the user to enter two binary number of 4-bit length then display their sum on the next line in binary format. You are required to implement proper checks so that only valid numbers can be input.

QUESTION # 5 [10 marks]

Write an assembly language program that input a number from keyboard in decimal form and then displays it in BCD form. Impose proper checks for valid input and output.

UNIVERSITY OF THE PUNJAB

Third Semester 2015
Examination: B.S. 4 Years Programme

Roll No. 456

PAPER: Computer Organization and Assembly Language **TIME ALLOWED: 2 hrs. & 30 min**
Course Code: IT-203/21402 **MAX. MARKS: 50**

Attempt this Paper on Separate Answer Sheet provided.

SUBJECTIVE

Part - II

Question # 2: **[20]**

a) What are the three basic steps in instruction execution cycle?
b) The CPU is connected to the rest of the computer using what three buses?
c) Is A5h is valid hexadecimal constant? (Yes/No)
d) What will be the result when we apply Shift Left on '1000000' ?
e) Name the four basic parts of an assembly language instruction.
f) How does the CALL instruction works?
g) What is the purpose of USES operator?
h) What is the purpose of INVOKE directive?
i) Which data type can hold a 32-bit signed integer?
j) Write instructions that contain a loop to display 1 to 5 integers.

Part - III

Question # 3: **[10]**

Write an assembly language program that reads a character from keyboard and determines whether the character is a vowel or consonant. Your program should display proper message.

Question # 4: **[10]**

a) Write an assembly language program that calculates the factorial on an integer number

Question # 5: **[10]**

a) Write an assembly language program that alphabetically sorts an array of ten characters.

UNIVERSITY OF THE PUNJAB

Third Semester 2017
Examination: B.S. 4 Years Programme

Roll .....

PAPER: Computer Organization and Assembly Language
Course Code: IT-203/21402

TIME ALLOWED: 2 hrs. & 30 mins.
MAX. MARKS: 50

Attempt this Paper on Separate Answer Sheet provided.

SUBJECTIVE

Part - II

Question # 2: [20]

a) Name the four basic parts of an assembly language instruction.
b) What is the difference between PROC and MACRO?
c) What are the different memory addressing techniques used in intel architecture?
d) Describe the function of the following terms:
   i. DUP operator
   ii. EQU directive
   iii. TEXTEQU directive
   iv. LAHF instruction
   v. NEG instruction

Part - III

Question # 3: [10]

Write a procedure that reads a text-paragraph from a file and then prints the number of characters on the screen.

Question # 4: [10]

Write a program that inputs 10 digits, stores them into an array and finds the minimum digit. Input Validation: you should input only digits and make sure that no other character can be input.

Question # 5: [10]

Write a program that should input two single-digit numbers and store them into registers or variables, your program should also input one arithmetic operator (among: +, -, *, /, %); your program should perform the arithmetic operation accordingly and display result.