SECTION B

- Q.5(a) What happens when the PC is powered up?(b) Suppose AL contains ABH and CF-1. Give the new contents of AL after each of the following instructions is executed. Assume that the preceding initial condition for each part of this question.
 - (i) SHL AL, 1
 - (ii) SAR AL, I
 - (iii) ROL AL, CL if CL contains 3
 - (iv) ROR AL, CL if CL contains 2
 - (c) Define macro. Write a macro to place the largest of two words in AX.
 (d) Write an assembly language program that will take the input N from user and display the
 - (d) Write an assembly language program that will take the input N from user and display the following output:

N	N	N	N	N
N	N	N	N	N
N	N	N*N	N	N
N	N	N	N	N
N	N	N	N	N

N.B. you have to use loop to solve this problem.

Sample input:

Enter the number: 5

Sample output:

5	5	5	5	5
5	5	5	5	5
5	-5	25	5	5
5	5	5	5	5
5	5	5	5	5

Q.6(a) (b) (c) (d)	What is the function of instruction pointer (IP)? Describe the general purpose registers of 8086 microprocessor. Write down the differences between DOS routine and BIOS routine. What are the purposes of instruction queue in 8086 microprocessor?	04 03 03
Q:1(a)	Write down the syntax for procedure declaration. What are the differences between	04 03
(b) (c) (d)	How does the CPU implement a conditional jump: Explain the significance of direction flag (DF) in string operation. Explain the significance of direction flag (DF) in string operation.	03 02
Q.8(a) (b) (c) (d)	Compare RISC processor with CISC processor. Briefly describe the Intel 8086 family of microprocessors. Write down the restriction on MOV and XCHG instructions Write down the restriction DIV and IDIV will give the same result, Explain.	03 04 03 02

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02

04

"Heaven's Light is our Guide"

Rajshahi University of Engineering and Technology B.Sc. Engineering 3rd Year 5th Semester Examination, 2015 Department of Computer Science and Engineering

Course No. CSE 507 Course Title: Microprocessor and Assembly Language Full Marks: 70 Time: THREE (03) hours

N.B.

Answer SIX questions taking THREE from each section. The questions are of equal value.

Use separate answer script for each section.

SECTION A

Q1(a)	What do you mean by 32-bit microprocessor? How adding operation of two numbers of 128-bit each is done by using 32-bit microprocessor. Explain with example.				
(b)	Draw the Von Neumann Architecture. Why is it called general purpose Computer				
Q2(a)	Architecture? Briefly describe (i) RISC and (ii) CISC.				
-	Describe the different processor family.	05%			
(c)	What do you mean by physical and logical address of memory?	02			
Q3(a)	Explain how a 20-bit physical address for 6086 is handled by 16-bit register?	G21/2			
(b)	Find the physical address of the following:	03			
	(i) 5705H:6121H (ii) 3AFEH:00F2H				
(c)	What do you mean by core 2 duo microprocessor? Explain it with necessary figure.				
(c)	Define (i) Many core processor and (ii) Mullicore processor	03			
Q4(a)	Explain (i) INT 16H and (ii) INT 21H.	02			
(b)	What is STACK? How stack operation is cone? Explain with example.	04			
(c)	What happens after executing a CALL and RET instruction.	03			
(d)	Suppose two strings are defined as follows:	.02%			
130	.DATA				
772	STRI DE 'RUET CSE'				
	STR2 DB 7 DUP(?) Write instructions to copy STR1 into STR2 in reverse order.				
	"				
	SECTION B				
Q5(a)	Briefly describe the flag register in 8086 microprocessor.	04			
	Explain XLAT instruction with an example.				
(c)					
(d)					
	What are the advantages of DUP and PTR instruction?				
(b)	•				
(c)	Write an assembly program that converts an uppercase sentence into lowercase	03 05			
Q7(a)	and vice versa. Write assembly code for the following decision structures-	05			
4, (4)		03			
(G)	i) IF AL<=BL ii) If (AX <bx) (bx<cx)="" or="" td="" then="" then<=""><td></td><td></td></bx)>				
E-Mile	Civelay the character in Ab Display the message "YES"				
43012	. ELSE ELSE				
	Display the character in BL Display the message "NO"				
- 1	END_IF END_IF				
(b)	Using the logic instruction clear the most and least significant bits of AL leaving the other bits unchanged.	02			
(c		0.4%			
200	the following instruction is executed	0.477			
	i) ROL AL, CL where CL contains?				
Q8(a	ii) ROR AL, CL where CL contains 2.	04			
THE R. P. LEWIS CO., LANSING, MICH.	-				
(0	Explain the function of the following. Debugger ii) Linker and iii) Assa abler.	03	100		
(c	Give two example of 8-bit, 16-bit and 32-bit n icroprocessors				
(d		O3			
200	See -	cin	3		

Heaven's Light is our Guide

Rajshahi University of Engineering & Technology B.Sc. Engineering 3rd Year ODD Semester Examination, 2016

Department of Computer Science & Engineering

Course No. CSE 3109 Course Title: Microprocessors and Assembly Language Full Marks: 72 Time: THREE (03) hours

3:

Answer SIX questions taking THREE from each section.

The questions are of equal value

Use separate answer script for each section.

	SECTION A				
		Marks			
	What are the basic differences between 16-bit and 32-bit microprocessor?				
(b)	What are the importances of using instruction queue of 8086 microprocessor?				
(c)	A memory location has a physical address 4A37BH. Compute the followings:	03			
	(i) The offset address if the segment number is 40FFH.				
	(ii) The segment number if the offset address is 123BH.				
(d)	Use only MOV, ADD, SUB, INC, DEC and Ni G translate the following high level	02			
	language assignment statements into assembly language where A, B, and C are word				
	variables.				
	(i) A=B-2C-A+1 (ii) B=C-B-2A				
2	Write an assembly program to read one of the hex digits A-F, and display it on the next	03			
(c)	line in decimal.				
	Sample execution:				
	Sample execution: Lines a hex digit. B				
	In decimal it is: 11				
O.2(a)	What are the purposes of using control flags of the flag register of 8088 microprocessor?	03			
(b)	For each of the following instructions, give the new destination contents and the new	06			
4	settings of CF, PF, AF, Zi, SF and OF. Suppose that the value of all of the flags are				
	initially 0.				
	 ADD AN, BN, STong AN contains SEPTM and BX contains 010114. 				
	(ii) SEG AL; where A1 contains 7FH.				
(2)	What are the uses of the following registers of 8088 microprocessor?	03			
	ii) CS				
	(ii) SS				
	(iii)CX				
	(iv)DX (v) IP				
	(v) P (vi)SP				
Q.3(a)	the transfer of the state of th	03			
(Z.D.(III)	in the character sequence.				
(b)	and the state of t	03			
	(i) IF AL>0 (ii) IF (AX <bx) (bx<cx)<="" or="" th=""><th></th></bx)>				
	THEN I In in All THEN				
	ELSE Display the message "YES"				
	Put 00h in All ELSE				
	ENO_IF Display the message "NO" END_IF				
(6	Explain XLAT instruction with an example.	03			
(d	Write an assembly program to perform the following: Put the sum 1+3+5+7+9++25 in BX.	03			
	and the first the second of a self-instrument and the	03			
Q.4(; (1	The state of the s	03			
,,	sequence:	-115			
	MOV AX. [180]				
	CBW	2000			
912	CWD . Who is DMA data transfer factor than drive the come data second and	Kill S			
(e) Why is DMA data transfer faster than doing the same data transfer with program instruction?	O Party of the			
	1) How many interrupt pro- are exists in 8086 microprocessor? What are the purposes of	E C			
F	using those pins?	DE N			
	e) Explain the differences between the following instructions:	02			
	MOV AX, 2437H and MOV AX, [2437H]				
	[P10200000000]	ALC: UNKNOWN OF THE PARTY OF TH			

Heaven's Light is our Guide

Rajshahi University of Lugineering & Technology B.Sc. Engineering 3rd Year ODD Semester Examination, 2016

Department of Computer Science & Engineering

Course No. CSE 3109 Course Title: Microprocessors and Assembly Language Full Marks: 72 Time: THREE (03) hours

B:

Answer SIX questions taking THREE from each section

The questions are of equal value.

Use separate answer script for each section.

	SECTION A	
	What are the basic differences between 16-bit and 32-bit microprocessor? What are the importances of using instruction queue of 8086 microprocessor?	Marks 02 02
(e) .	A memory location has a physical address 4A37BH. Compute the followings: (i) The offset address if the segment number is 40FFH. (ii) The segment number if the offset address is 123BH.	03
P	Use only MOV, ADD, SUB, INC, DEC and NLG translate the following high level language assignment statements into assembly language where A, B, and C are word variables. (i) A=B-2C-A+1	02
	(ii) B=C-B-2A Write an assembly program to read one of the hex digits A-F, and display it on the next line in decimal.	03
	Sample execution: Enter a hex digit, B In decimal it is: 11	
Q.2(a) (b)	What are the purposes of using control flags of the flag register of 8088 microprocessor? For each of the following instructions, give the new destination contents and the new settings of CF, PF, AF, Z). SV and OF. Suppose that the value of all of the flags are initially 0.	03 06
(17)	 (ii) ADD AX, BX, a Lore AX contains 3FU(2) and BX contains 0104(4). (iii) NEG AL, where A1 contains 7FH. What are the uses of the following registers of \$0.88 microprocessor? (i) CS (ii) SS 	03
	(iii)CX (iv)DX (v) IP (vi)SP	
	Suppose AL and BL contain extended ASCII characters, Display the one that comes last in the character sequence.	03
(6)	Write assembly code to do the following decision structure:	03
	(i) IF AL>0 (ii) IF (AX <bx) (bx<cx)="" 00h="" all="" else="" else<="" in="" or="" put="" td="" then="" whi=""><td></td></bx)>	
	END_IF Display the message "NO" END_IF	
(e) (d)		03 03
Q.4(a) (b)	Explain the working principle of interrupt vector table. What happens to the contents of the AN after executing the following 8086 instruction sequence:	03 03
<u></u>	MOV.AX. F18011 CBW CWD	
(6	instruction? With poverior with poverior	02
The late of	How many interrupt that are crists in 8086 microprocessor? What are the purposes of Explain the differences between the following instructions:	Ge .
	MOV AX, 2437H and MOV AX, [2457H]	

"Heaven's Light is our Guide"

Rajshahi University of Engineering and Technology B.Sc. Engineering 3rd Year 5th Semester Examination, 2015 Department of Computer Science and Engineering Course No. CSE 507 Course Title: Microprocessor and Assembly Language Full Marks: 70 Time: THREE (03) hours

N.B.

Answer SIX questions taking THREE from each section. The questions are of equal value. Use separate answer script for each section.

SECTION A

red .	SECTION A		
Q1(a)	What do you mean by 32-bit microprocessor? How adding operation of two numbers of 128-bit each is done by using 32-bit microprocessor. Explain with example.	07%	
(b)	Draw the Von Neumann Architecture. Why is it called general purpose Computer Architecture?	04	
Q2(a)	Briefly describe (i) RISC and (ii) CISC.	04	
(b)	Describe the different processor family.	05%	
(c)	What do you mean by physical and logical address of memory?	02	
Q3(a)	Explain how a 20-bit physical address for 8086 is handled by 16-bit register?	62%	
(b)	Find the physical address of the following: (i) 5706H:6121H (ii) 3AFEH:00F2H	03	
(c)	What do you mean by core 2 duo microprocessor? Explain it with necessary figure.	03	
(d)	Define (i) Many core processor and (ii) Multicore processor	03	
Q4(a)	Explain (i) INT 16H and (ii) INT 21H.	02	
(b)	What is STACK? How stack operation is cone? Explain with example.	04	
(c)	What happens after executing a CALL and RET instruction,	03	
(d)	Suppose two strings are defined as follows:	02%	
200	DATA		
714	STRI DE 'RUET CSE'		
	Write instructions to copy STR1 into STR2 in reverse order. White instructions to copy STR1 into STR2 in reverse order.		
1	WALLE HISTOCHOUS TO CODY STILL HIS BILES HISTOCHOUS		
- 100	SECTION B		
Q5(a)	Briefly describe the flag register in 8086 microprocessor.	04	
(b)	Explain XLAT instruction with an example,	02%	
(c)	Write an assembly program that can find a substring from a string.	03	
(d)	What is the basic difference AND and TEST instruction?	02	
Q6(a)	What are the advantages of DUP and PTR instruction?	031/5	
(b)	Describe the function of each status flag in £086 microprocessor.	03	
(c)	그래도 마다 가다 하는 사람들이 가게 살아 있다는 그래요 아이는 사람이 없는 사람들이 가게 되었다. 그래요	05	
	and vice versa.	0,5	
Q7(a)	Write assembly code for the following decision structures-	05	
one o	i) IF AL<=BL ii) II (AX <bx) (bx<cx)="" or="" td="" then="" then<=""><td></td><td></td></bx)>		
Carlotte Control	Circley the character is Ab Display the message "YES"		
2 30 20	ELSE	- 3	
	Display the character in BL Display the message "NO"		
	END_IF END_IF		
(b)	Using the logic instruction clear the most and least significant bits of AL leaving the other bits unchanged,	02	
(c)		04%	resident to
Q8(a		04	30
(b		1.0	100
27	i) Debugger ii) Linker and iii) Assa nbier.	03	11
(c	Give two example of δ-bit, 16-bit and 32-bit π icroprocessors	03	3
1d	The register pair SS:BP is used to access data from which segment?	o:h	-
以			3

SECTION B

- (b) Suppose AL contains ABH and Cl-1. Give the new contents of AL after each of the following instructions is executed. Assume that the preceding initial condition for each part of this question.
 - (i) SHL AL, 1
 - (ii) SAR AL, I
 - (iii) ROL AL, CL if CL contains 3
 - (iv) ROR AL. CL if CL contains 2
 - (c) Define macro. Write a macro to place the largest of two words in AX.
 (d) Write an assembly language program that will take the input N from user and display the

following output:

N	N	N	N	N
N	N	N	N	N
N	N	N*N	N	N
N	N	N	N	N
N	N	N	N	N

N.B. you have to use loop to solve this problem.

Sample input:

Enter the number: 5

Sample output:

5	5	5	5	5
5	5	5	5	5
5	5	25	5	5
5	5	5	5	5
5	5	5	5	5

Q.6(a) (b) (c) (d)	What is the function of instruction pointer (IP)? Describe the general purpose registers of 8086 microprocessor. Write down the differences between DOS routine and BIOS routine. What are the purposes of instruction queue in 8086 microprocessor?	04 03 03
Q.7(a)	Write down the syntax for procedure declaration. What are the differences between	04
<i>"</i>	NEAR and FAR procedure? How does the CPU implement a conditional jump?	03
(p)	Explain the significance of direction flag (DF) in string operation.	03
(b) (c)	What happens when stack size is omitted during stack segment declaration?	02
12 223	DIEG	03
Q.8(a)	Compare RISC processor with CISC processor.	04
(b)	Briefly describe the Intel 8086 family of microprocessors.	
(c)	Write down the restriction on MOV and XCHG instructions	03
(d)	For which condition DIV and IDIV will give the same result, Explain,	02
