DHARMSINH DESAI UNIVERSITY, NADIAD
FACULTY OF TECHNOLOGY
FIRST SESSIONAL
SUBJECT : (IT506) ADVANCED MICROPROCESSOR ARCHITECTURE

Examination	**: B.TECH - Semester - V**	**Seat No.**	**:**
Date	**: 28/07/2014**	**Day**	**: Monday**
Time	**: 11.15 to 12.30**	**Max. Marks**	**: 36**

INSTRUCTIONS:
1. *Figures to the right indicate maximum marks for that question.*
2. *The symbols used carry their usual meanings.*
3. *Assume suitable data, if required & mention them clearly.*
4. *Draw neat sketches wherever necessary.*
5. ***Calculator is not allowed**.*

Q.1	**State true/false and justify your answer. (No marks without justification)**		**12**
	(a)	Interrupt subroutine can not be single stepped.	**02**
	(b)	In 8086, starting address of memory segment could be 000A1H.	**02**
	(c)	The BIU of 8086 contain 4 byte prefetch queue.	**02**
	(d)	Two different logical addresses can point to the same physical address in 8086.	**02**
	(e)	SHR and SAR instructions are exactly ame.	**02**
	(f)	If DS=2000H, SS=1000H, BP=E000H, SI=E000H, the instruction MOV AL,[BP+SI] will move the data from physical memory location 2C000H.	**02**
Q.2			
	(a)	The 8086 system requires following memory map : EPROM - to be mapped to last 32 Kbytes of processor address space. EPROM device available is of size 16 Kbytes. Use 3625 bipolar PROM as decoder to map above devices using absolute decoding. Write down the truth table and draw the complete circuit diagram. State your assumptions, if any, very clearly.	**06**
		OR	
	(a)	The 8086 system requires following memory map : RAM - 00000 TO 03FFFH EPROM - FC000H TO FFFFFH RAM & EPROM devices available are of size 8 Kbytes. Use only <u>*ONE 3625*</u> bipolar PROM to decode and map above devices. Write down the truth table and draw the complete circuit diagram. State your assumptions, if any, very clearly.	**06**
Q.2	(b)	Write an assembly program to move a string 'ADVANCED MICROPROCESSOR' which is defined in a logical segment named DATA1 to another logical segment named DATA2. Use a ***MACRO*** to copy a string from source to destination. The macro has 3 parameters: length of a string, offset of source string and offset of a destination string.	**06**
		OR	
	(b)	Compute the average of 4 bytes stored in an array in memory. Write a near procedure and use pass by stack method for passing parameters to the procedure.	**06**
Q.3			
	(a)	If ICW2 is initialized with T7=0, T6=0, T5=0, T4=1 and T3=0 interrupt arrives on IR2 pin of 8259, what type number will be sent by 8259 during 2nd INTA pulse?	**02**
	(b)	Which of the following instructions are invalid? Re write the invalid instructions with proper justification. (i) AND [BP],0001 (ii) INC [SI] (iii) JMP BL (iv) CALL [BX]	**04**
	(c)	Calculate the displacement for jump. MOV CX,5 NEXT: ADD AX,BX NOP NOP JMP NEXT	**02**
	(d)	PUSHF MOV BP,SP OR WORD PTR [BP+0],0FFEFH	**04**

		POPF
		MOV AX,7FFFEH
		MOV BX,02H
		ADD AX,BX
		INTO
		Describe the response of 8086 for all instructions after POPF instruction. Assume single step interrupt subroutine saves all registers	

		OR	
Q.3	(a)	Address 00080h in the interrupt vector table contains 4A24h and address 00082h contains 0040h. (i) To what interrupt type do these locations correspond? (ii) What is the starting address for interrupt service procedure?	**02**
	(b)	Determine the addressing modes for following 8086 instructions. (i) ADD BX, 59H[DI] (ii) XCHG CH, ES:[BX] (iii) OR [BP+SI+ 1234H],AL (iv) SUB [2048],DH	**04**

	(c)	In the following program OF flag will not set. State true/false and justify.
		MOV AL,FFH
		MOV BL,FFH
		ADD AL,BL
			02

	(d)	Define reentrant procedure and prove when parameters passed using stack, procedure will always be reentrant.	**04**