



**DHARMSINH DESAI UNIVERSITY, NADIAD**  
**FACULTY OF TECHNOLOGY**  
**FIRST SESSIONAL**

**SUBJECT : (IT506) ADVANCED MICROPROCESSOR ARCHITECTURE**

Examination	: B.TECH - Semester - V	Seat No.	:
Date	: 29/07/2013	Day	: Monday
Time	:	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** 12
- (a) After reset, 8086 will fetch first instruction from \_\_\_\_\_ physical address. 02
- (b) If all segment registers are initialized with same value, 8086 can access maximum \_\_\_\_\_ Kbytes of physical memory at that instant of time. Justify your answer. 02
- (c) First 1 Kbytes memory in 8086 system must be non-volatile memory in 8086. State true/false and justify. 02
- (d) In which condition, two different logical addresses can point to the same physical address in 8086 ? Explain with example. 02
- (e) If DS=10000, SS=20000, BP=0001 and SI=FFFF, IF MOV AX,[BP+SI] is executed, from which physical memory locations, content will be transferred to AX register ? 02
- (f) MOV AX, 01FFH 02  
MOV BL, 02H  
DIV BL  
When DIV BL instruction is executed, type 0 response will be generated.  
State True/false and justify.
- Q.2** 06
- (a) The 8086 system requires following memory map : 06  
EPROM - FC000H TO FDFFFF  
EPROM device available is of size 4 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.  
**OR**
- (a) The 8086 system requires following memory map : 06  
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.
- Q.2** 06
- (b) Write a program for TASM to add four 16-bit unsigned numbers which are stored in logical segment named NUMBER. Store the result in another logical segment named RESULT. Draw neat flow chart and state any assumptions if any clearly. 06  
**OR**
- (b) MOV AX, FFFFH 06  
PUSH AX  
CALL ADDITION  
POP AX  
Write near procedure ADDITION to add 2 8-bit numbers which were passed in the above program through stack and pass back the result on the stack to main line program. State your assumptions, if any, very clearly.
- Q.3** 01
- (a) The BX register is typically used as a pointer for accessing (i) extra segment (ii) code segment (iii) stack segment (iv) data segment 01
- (b) Define the pipelining concept in one sentence. 01
- (c) Differentiate RET and IRET instruction. 02
- (d) MOV AX, [1234H] and MOV AX, [1235H], which one will run faster and why ? 02
- (e) JMP [BX] ; if this is a intersegment call instruction, re-write the instruction with proper assembler directive. 02
- (f) NUMBER DW 1234H, 5678H ; show how these numbers are stored in the memory of 8086. 02
- (g) 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 2<sup>nd</sup> INTA pulse ? 02

**OR**

**Q.3 (a) PUSHF  
MOV BP,SP  
OR WORD PTR [BP+0],0100H  
POPF  
MOV AX,7FFFEH  
MOV BX,02H  
ADD AX,BX  
INTO**

**12**

**Describe the response of 8086 for all instructions after POPF instruction. Assume single step interrupt subroutine saves all registers.**