

Time: 3 Hours

JUNE 2013

Max. Marks: 100

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

NOTE: There are 9 Questions in all.

- Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.
- The answer sheet for the Q.1 will be collected by the invigilator after 45 minutes of the commencement of the examination.
- Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.
- Any required data not explicitly given, may be suitably assumed and stated.

Q.1 Choose the correct or the best alternative in the following: (2×10)

a. In Intel's 8086 microprocessor the operating frequency is generated using _____.

- (A) an on-chip oscillator (B) IC-8284
(C) IC - 8282 (D) None of these

b. In Intel's 8086 microprocessor the maximum size of a memory segment is _____.

- (A) 64 KBytes (B) 16 KBytes
(C) 32 KBytes (D) None of these

c. Maximum size of an instruction in Intel's 8086 microprocessor _____.

- (A) 4 bytes (B) 0 bytes
(C) 2 bytes (D) 6 bytes

d. The "D" bit in Status register of Intel's 8086 microprocessor is to _____.

- (A) increment/decrement SI and DI pointers
(B) disable pointers SI and DI
(C) disable interrupts
(D) None of these

e. In indirect (variable) IO port addressing of Intel's 8086 microprocessor _____ register holds the port address.

- (A) AX register (B) BX register
(C) CX register (D) DX register

Code: AC78**Subject: ADVANCED MICROPROCESSORS**

- f. An Assembler is a tool used to convert low level source program into _____program.
- (A) an object (B) high level source
(C) an executable (D) None of these
- g. Intel 80286 microprocessor's address bus is of
- (A) 16 bit (B) 8 bit
(C) 32 bit (D) 24 bit
- h. In Intel's 8086 the 'D' bit in op-code format is to _____.
- (A) decide size of source register
(B) decide size of destination register
(C) decide REG in 2nd byte as source or destination
(D) None of these
- i. In Intel's 8086 an intersegment branching instruction changes the contents of
- (A) CS register only (B) IP register only
(C) Both CS & IP registers (D) DS register only
- j. Pseudo codes or assembler directives find place or appear in
- (A) Source file only (B) Objects file only
(C) Executable file only (D) All of these

**Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.**

- Q.2** a. What are the salient features of INTEL's-8086 microprocessor? Explain with an example how 20 bit physical address is calculated? (10)
- b. Mention the I/O addressing modes available in INTEL's-8086. Explain with an example for each. (6)
- Q.3** a. Correct the following instructions if necessary and indicate its addressing mode.
- (i) MOV BL, AX (ii) OUT DX,AL
(iii) ROL AX, 04 (iv) DIV BX, CX (8)
- b. Explain the following instructions of INTEL's-8086.
- (i) STOSB (ii) CMPSB
(iii) SCASB (iv) MOVSB (8)
- Q.4** a. Explain with examples the inter segment return and intra segment return instructions. (8)

- b. When interrupted by an external interrupt what happens to the program execution in INTEL's-8086? Explain. What is the role of IRET instruction? (8)
- Q.5** a. What are the functions of the following pins of numeric co-processor-8087?
(i) RQ/GT (ii) BUSY
(iii) S₂ S₁ S₀ (iv) TEST (8)
- b. Give an example for each of the following 8087 instructions:-
(i) Arithmetic instruction
(ii) Data transfer instruction
(iii) Compare instructions
(iv) Transcendental instruction (8)
- Q.6** a. Using 8086 instructions, write an assembly language program to add a series of 1 byte numbers. Write necessary comments for the same. (10)
- b. Explain the following assembler directives:
(i) PTR (ii) PUBLIC
(iii) SEGMENT (6)
- Q.7** a. Explain DOS operating system services. (6)
- b. Write a 8086 program to check user entry for password. (5)
- c. Explain high level language services for BIOS and DOS services. (5)
- Q.8** a. Write an assembly language program by using 8087 instructions to compute the hypotenuse of a right angled triangle. Comment the code. (8)
- b. Write a C program to print a message, if the printer is online using BIOS and DOS services. Explain the methodology. (8)
- Q.9** a. Explain the following for 80386 processor:-
(i) Segmentation
(ii) Paging (8)
- b. Draw the architecture of Pentium processor and explain the features of Pentium processor. (8)