
AMIETE – CS (NEW SCHEME) – Code: AC78

Subject: ADVANCED MICROPROCESSORS

Time: 3 Hours

JUNE 2011

Max. Marks: 100

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. Intel 80186 and 80286 microprocessors are

- | | |
|------------|-----------------------|
| (A) 16-bit | (B) 8-bit |
| (C) 32-bit | (D) None of the above |

b. The 8086 microprocessor can directly address memory up to

- | | |
|----------------|-----------------------|
| (A) 64 Kbytes | (B) 128 Kbytes |
| (C) 256 Kbytes | (D) None of the above |

c. For MOV S instruction, if DF =1, the contents of index register SI and DI are

- | | |
|------------------------------|------------------------------|
| (A) Automatically decrements | (B) Automatically increments |
| (C) Both get subtracted | (D) Both get added |

d. Ready pin of a microprocessor is used

- (A) To indicate that the microprocessor is ready to receive inputs.
- (B) To indicate that the microprocessor is ready to receive outputs.
- (C) To introduce wait states.
- (D) To provide direct memory access.

e. The PCI bus is the important bus found in all the new Pentium systems because

- (A) It has plug and play characteristics
- (B) It has ability to function with a 64 bit data bus
- (C) Any Microprocessor can be interfaced to it with PCI controller or bridge
- (D) All of the above

f. The 8088 microprocessor has

- | | |
|----------------------------|----------------------------|
| (A) 16 bit data bus | (B) 4 byte pre-fetch queue |
| (C) 6 byte pre-fetch queue | (D) 16 bit address bus |

- g. Pseudo instructions are basically
- (A) false instructions.
 - (B) instructions that are ignored by the microprocessor.
 - (C) assembler directives.
 - (D) instructions that are treated like comments.
- h. What will be the contents of register AL after the following has been executed
- ```
MOV BL, 8C
MOV AL, 7E
ADD AL, BL
```
- (A) 0A and carry flag is set
  - (B) 0A and carry flag is reset
  - (C) 6A and carry flag is set
  - (D) 6A and carry flag is reset
- i. Direction flag is used with
- (A) String instructions.
  - (B) Stack instructions.
  - (C) Arithmetic instructions.
  - (D) Branch instructions.
- j. Which type of JMP instruction assembles if the distance is 0020 h bytes
- (A) near.
  - (B) far.
  - (C) short.
  - (D) none of the above.

---

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

---

- Q.2** a. With a neat diagram explain the architecture of 8086. (8)
- b. Explain with examples the Immediate Addressing, Register Addressing and Direct Addressing modes. (5)
- c. Describe the need for templates in instruction coding of 8086. (3)
- Q.3** a. Explain with examples the instructions to perform data transfer between a segment register and a register/memory location. (6)
- b. Explain with examples LDS and LES instructions. (4)
- c. Write an algorithm to perform the equivalent of DAA instruction. (6)
- Q.4** a. Explain with examples conditional jump instructions which perform a jump based on the value of a single flag. What is the change needed in the code to branch anywhere in the segment based on a condition? (8)
- b. What is an interrupt? Discuss all the five software interrupt instructions. (6)
- c. Give examples for Maskable and Non-Maskable interrupts. (2)

- Q.5** a. What is the need for an arithmetic co-processor in a micro-computer system? with a functional pin diagram of 8087, describe the functions of various pins. (10)
- b. Write an 8087 program that loads three values for X, Y, and Z, adds them, and store the result. (6)
- Q.6** a. What do you understand by assembler directives? What do the following assembler directives do?  
(i) ASSUME (ii) SEGMENT  
(iii) DB (iv) PUBLIC (8)
- b. Write an assembly language program to sort a given set of 8 bit numbers in descending order. (8)
- Q.7** a. Compare linear search and binary search in 8086 with the help of example of each. (8)
- b. Using BIOS services, write 8086 assembly language program to display memory size in kilo bytes. (8)
- Q.8** a. Write a C program to create a subdirectory if it does not exist, using DOS interrupt. A suitable message should be displayed on CRT depending on the success or failure of the operation. (8)
- b. Write a C program to display the attributes of a file using a DOS interrupt. If the file does not exist, display an error message on the screen. (8)
- Q.9** a. What is memory paging? Explain how it is used for memory addressing in 80386. (6)
- b. Write a short note on the following:  
(i) 80286  
(ii) 80486 (10)