

Code: AC78

Subject: ADVANCED MICROPROCESSORS

AMIETE – CS

Time: 3 Hours

**DECEMBER 2012**

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. Status bits and control bits are present in

- |                         |                   |
|-------------------------|-------------------|
| (A) Segment register    | (B) Flag register |
| (C) Instruction pointer | (D) All of these  |

b. Intel 8089 is an

- |                    |                   |
|--------------------|-------------------|
| (A) Co-Processor   | (B) Clock Divider |
| (C) DMA Controller | (D) I/O Processor |

c. In 8086, MOV DS,25H , instruction causes

- |                                  |                                  |
|----------------------------------|----------------------------------|
| (A) Moves 0025H into DS register | (B) Moves FF25H into DS register |
| (C) Moves 25H into DS register   | (D) None of these                |

d. In 8086, the TEST instruction performs

- |                      |                   |
|----------------------|-------------------|
| (A) Bit testing      | (B) Bit wise AND  |
| (C) Bit wise compare | (D) None of these |

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 these                                                             |

f. 8086 does not provide any intrinsic support for operations on

- |                      |                            |
|----------------------|----------------------------|
| (A) Signed Numbers   | (B) Unsigned Numbers       |
| (C) Both (A) and (B) | (D) Floating Point Numbers |

**Code: AC78****Subject: ADVANCED MICROPROCESSOR**

- g. The generation of .OBJ file is done by
- (A) Compiler (B) Assembler  
(C) Linker (D) None of these
- h. Which ROM BIOS routine checks the complete hardware once the computer is switched on?
- (A) INT (B) POST  
(C) PT (D) RST
- i. In C, DOS.H file contains
- (A) POST, MSDOS.SYS (B) INT, POST  
(C) REGS, SREGS (D) All of these
- j. Enhanced instruction set of Pentium performs
- (A) Networking functions (B) FTP functions  
(C) Audio functions (D) Trigonometric and exponential functions

---

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

---

- Q.2** a. Draw the block diagram of a microprocessor based computer system showing the address, data and control bus structure. (6)
- b. In Intel 8086 microprocessors, why is the segment register content appended by 0 to generate the physical address? Using the stack, complete the code to exchange two word-size data items located at DAT1 and DAT2 in the memory. (2+3)
- c. Explain with examples the Immediate, Addressing, Register Addressing and Direct Addressing modes. (5)
- Q.3** a. Mention any three data conversion instructions. Give an example for each. (6)
- b. Explain the working of process control instruction. (4)
- c. Give the applications of PUSH and POP instructions and I/O port instructions. (6)
- Q.4** a. Explain the working of any two software interrupt instructions. (6)
- b. Write advantages of Iteration instruction. Explain one of Iteration instruction in detail. (4)

**Code: AC78****Subject: ADVANCED MICROPROCESSOR**

- c. Explain the following for CALL and RETURN instructions:-
- (i) NEAR (Intrasegment)
  - (ii) FAR (Intersegment) (6)
- Q.5** a. Draw the pin diagram of 8087 and give its overview. (5)
- b. Explain the various transcendental instructions of 8087. (6)
- c. Explain data types in 8087. (5)
- Q.6** a. Write an 8086 assembly language program to compute LCM of two 16 bit unsigned integers. (8)
- b. Explain the following:
- (i) Debugging a program
  - (ii) Assembling a program
  - (iii) Linking a program
  - (iv) Step-wise execution of a program (8)
- Q.7** a. Write an assembly language program for matrix multiplication. (8)
- b. Explain the features of BIOS and DOS services. (4)
- c. Write an 8086 assembly language program which checks whether the printer is online. (4)
- Q.8** a. Using DOS function call, write a C program to obtain the attributes of a file. Message should be displayed on the screen. If the file is not found, suitable error message has to be displayed. (8)
- b. Mention any four 8087 co-processor instruction. Give an illustration to compute square root. (4+4)
- Q.9** a. Explain privilege and protection features of 80286. (4)
- b. Compare 80286 and 80486 processors. (6)
- c. Explain the salient features of Pentium. (6)