

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 MICROPROCESSORS

- 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)

- 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)