

AMIETE – CS (OLD SCHEME)

Time: 3 Hours

OCTOBER 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. Intel's 80186 and 80286 microprocessors are

(A) 16-bit

(B) 8-bit

(C) 32-bit

(D) None of the above

b. 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

c. For MOVS 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. The term SUPERSCALAR is used for the processor

(A) Which contains GHz clock

(B) Which contains more CACHE's

(C) Which contains more than one pipeline

(D) None of the above

- e. Which is the tool used to connect the user and the computer?
- (A) Assembler (B) Interpreter
(C) Both (A) and (B) (D) None
- f. Maximum how many I/O devices can be connected employing two 8259 IC's
- (A) 16 (B) 64
(C) 8 (D) None of the above
- g. 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
- h. Which type of JMP instruction assembles if the distance is 0020 h bytes
- (A) near (B) far
(C) short (D) none of the above
- i. If the crystal oscillator is operating at 15 MHz, the PCLK output of 8284 is
- (A) 2.5 MHz (B) 5 MHz
(C) 7.5 MHz (D) 10 MHz
- j. Which Flags can be set or reset by the programmer and also used to control the operation of the processor
- (A) Trace Flag
(B) Trace Flag and Interrupt Flag
(C) Trace Flag, Interrupt Flag, Direction Flag
(D) Interrupt Flag and Direction Flag

Answer any FIVE Questions out of EIGHT Questions.

Each question carries 16 marks.

- Q.2** a. Differentiate between real and protected modes of an Intel microprocessor. Discuss protected mode memory addressing in brief. (5)
- b. Discuss the register organization of 8086. Explain the function of each register. (6)
- c. Explain the working of memory paging. (5)
- Q.3** a. Explain the functions of the following:
- (i) Debugger (ii) Assembler
(iii) Linker (6)

- b. Give an assembly language instruction to illustrate:
 (i) Data transfer instruction (ii) Program control instruction
 (iii) Loop instruction (6)
- c. Write an assembly language program to find sum of 'n' integers. (4)
- Q.4** a. What do you mean by the term procedure? What is the difference between near call and far call? (4)
- b. What is an interrupt? Discuss the hardware interrupts available in INTEL family. (6)
- c. Draw and explain the simplified 8086/8088 write bus cycle timing wave form. (6)
- Q.5** a. Discuss DMA definition and operation in brief. (6)
- b. Discuss the role of bus arbiter in a multiprocessor configuration.. (6)
- c. Compare isolated I/O and memory-mapped I/O. (4)
- Q.6** a. What do you understand by DRAM? How the processor reads and writes data into a DRAM location? How is refreshing of DRAM done? (6)
- b. Explain the working of DRAM and SDRAM. (6)
- c. Explain the role of command words in 8259 (Programmable interrupt controller). (4)
- Q.7** a. What is the function of 8254 Programmable Interval Timer? Discuss any one of its application in detail. (8)
- b. With respect to serial communication define the following:
 (i) Baud rate. (ii) Asynchronous communication.
 (iii) Parity. (iv) Half duplex. (8)
- Q.8** a. Explain the data formats for the arithmetic co-processor family. (6)
- b. Explain how memory management is improved in Pentium processors. (6)
- c. Compare the architectural difference between 80386 and 80486. (4)
- Q.9** a. Draw the system block diagram for the personal computer that contains a PCI bus. (4)
- b. Explain ISA bus and need of EISA bus. (6)
- c. What are the differences between DOS and BIOS function cells? (6)