

**AMIETE – ET (OLD SCHEME)**

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Code: AE13  
Time: 3 Hours

**JUNE 2010**

Subject: COMPUTER ENGINEERING  
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.
  - 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.
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**Q.1 Choose the correct or the best alternative in the following: (2×10)**

- a. A program which translates entire high level program into a machine language program is called

(A) Compiler (B) Loader  
(C) Interpreter (D) Linker

- b. Examples of optical disks are

(A) CD-RW, RAID (B) DVD-ROM, floppy disk  
(C) CD-RW, SCSI (D) DVD-RAM, CD-RW

- c. 68030 processor series belongs to

(A) DEC Alpha (B) Motorola  
(C) AMD Processor (D) Sun Ultra Sparc

- d. The technique which allows a program to use main memory more than what a computer really has is known as

(A) Cache memory (B) Virtual memory  
(C) Associative memory (D) Flash memory

- e. The program stored in ROM, PROM, EPROM and EEPROM are

(A) System software (B) Software  
(C) Firmware (D) Application software

- f. The drawback of EISA bus is

(A) Clock speed (B) Data rate  
(C) No support for VGA (D) No support for disk controller

- g. Binary number for the decimal real number 12.625 is

(A) 1100.110 (B) 1100.100  
(C) 1100.011 (D) 1100.101

- h. The difference between minimum mode and maximum mode in 8086 is
- (A) Registers (B) Control signals  
(C) Bus (D) Data signals
- i. Carry, sign, zero and parity flags are contained in
- (A) Instructions register (B) Accumulator register  
(C) Status register (D) Special purpose register
- j. In programmable interval timer — 8254, the size of mode bit and LSB bit (D0) indicates
- (A) Three bits, BCD (B) Four bits, Select  
(C) Three bits, ReadWrite (D) Three bits, Count

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

**Q.2 a.** Explain the features of the following systems: (6)

(i) Main-frame computers (ii) Mini computers (iii) Micro computers

b. Give the components of hardware, software and firmware (6)

c. Compare distributed processing and parallel processing. (4)

**Q.3 a.** Explain cache memory and the following: (4)

(i) Types of cache schemes (ii) Levels of cache memory

b. Compare and contrast the following memory models: (6)

(i) ROM, EPROM and EEPROM (ii) SRAM and DRAM

c. Mention various types of optical disk. Give the differences between hard disks and RAM. (6)

**Q.4 a.** Explain the functional block diagram of 8279 programmable keyboard and display interface. (5)

b. Mention the three I/O modes used in 8255 programmable peripheral interface and give their functionality. (5)

c. Give the functionality of any two input and output devices. (4)

d. Give the transmission format of synchronous and asynchronous transmission of data. (2)  
(8)

**Q.5 a.** Explain the following with timing diagrams: (6)

- (i) Memory read cycle                      (ii) Memory write cycle

- b. Draw 8085 microprocessor functional block diagram. Explain briefly. (7)
- c. Mention various types of addressing modes. (3)

- Q.6** a. Find 2's complement for the following: 101100, 1100. (2)
- b. Find BCD representation for the result of the arithmetic function  $[(1001)_2 + (1100)_2]$ . (2)
- c. Define operating systems. Explain the features of operating systems. (6)
- d. Give syntax of any **THREE** commands in DOS and Linux systems: (2×3)
- (i) Directory list                      (ii) Check disk status  
(iii) File attributes                      (iv) Find a file a.txt

- Q.7** a. Explain the steps in DMA transfer. (3)
- b. Write a subroutine to transmit an ASCII character, stored in register C, using the SOD line as a 1-bit output port, of 8085 microprocessor. (4)
- c. Explain command word format and mode word format for 8251 USART. (5)
- d. If 8085 adds 87H and 79H, specify the contents of the accumulator and the status of the sign, zero and carry flags. (4)

- Q.8** a. Explain the functionality of any three following processors: (6)
- (i) PowerPC processor (ii) AMD processor  
(iii) Motorola Processor (iv) DEC Alpha processor
- b. Compare instruction set of Pentium and P6 processors (4)
- c. Explain the following modes used in microprocessors: (6)
- (i) Real                      (ii) Protected                      (iii) Virtual

- Q.9** a. Explain the PC/XT architecture based on 8088 processor. (7)
- b. Explain any three bus architectures and give their standards. (9)