Code: AE13 **Subject: COMPUTER ENGINEERING**
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. The language that the computer can understand and execute is called _____

(A) Machine language **(B)** Application software
(C) System program **(D)** none of the above

b. The address / data bus in 8085 is _____

(A) Multiplexed **(B)** Demultiplexed
(C) Decoded **(D)** Loaded

c. CD-ROM is a

(A) Semiconductor memory **(B)** Memory register
(C) Magnetic memory **(D)** none of the above

d. Half adder is logic CKT that adds _____ Digit at a time

(A) Two **(B)** one
(C) Three **(D)** zero

e. A computer cannot "boot" if it does not have the

(A) Compiler **(B)** Loader
(C) Operating system **(D)** Assembler

f. In 1978 Intel introduced the 16 bit Microprocessor 8086 now called as_____

(A) M6 800 **(B)** APX 80
(C) Zylog z8000 **(D)** Intel 8086

g. What will be the hexadecimal equivalent of decimal number (54977)?

(A) D6C1 **(B)** DC61
(C) D6C5 **(D)** none

h. If the datum is to be written into memory then CPU places it in_____

(A) MAR **(B)** MDR
(C) MBR **(D)** MVB

i How many bits are needed within a machine code instruction to select a single register in a machine with 16 general registers?

(A) 2 **(B)** 3
(C) 4 **(D)** 5

j. A memory chip has 8 data lines and 9 address lines. How many bytes can be stored on it?

(A) 511 **(B)** 512
(C) 513 **(D)** 522

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

Q.2 a. Explain the following terms:

(i) Multiprocessing
(ii) Microprocessors
(iii) Supercomputers **(6)**

b. What is the difference between application software and system software? **(3)**

c. Differentiate between a client and a server. Explain three tier client server architecture. **(4)**

d. Explain the Flynn's Classification of Computers. Give also suitable diagrams. **(3)**

Q.3 a. Explain the chief functions of an Operating System. How does the Operating System Carry out the memory management? **(6)**

b. Express the number 426 in BCD and decimal code representation. **(4)**

c. Differentiate between RAM and ROM. **(3)**

d. Give full form of DOS. Explain 2 features of DOS. **(3)**

Q.4 a. Explain the levels and types of cache memories. **(4)**

b. Give the pin diagram of 8085 microprocessor. **(4)**

c. Describe the 8085 interrupt process in eight steps. **(8)**

Q.5 a. What is an instruction cycle? How does parallel processing affect the instruction executions? **(4)**

b. Give a diagram illustrating the interface of 8259 programming controller with 8086. **(6)**

c. Explain the following addressing modes:

(i) Immediate addressing
(ii) Relative index addressing **(4)**

d. How do you locate a directory and a file in UNIX? **(2)**

Q.6 a. What is Direct Memory Access? Give a diagram to illustrate the function of 8237. **(6)**

b. What is status control word? Explain the fields. Which fields are changed if addition of two hex number is made and an overflow occurs? Explain. **(6)**

c. Give syntax of the following commands in UNIX:
(i) To display the directory
(ii) To change the password
(iii) To find a particular file
(iv) To copy a file from one folder to another **(4)**

Q.7 a. Give a brief note on RS-232 Standard. **(5)**

b. Explain the control word format of 8251 USART. **(5)**

c. Describe the programming model and pin diagram of Pentium IV processor. **(6)**

Q.8 a. Explain the working of any **TWO** of the following processors:
(i) AMD
(ii) Motorola
(iii) CYRIX **(4)**

b. Describe the functional units of Intel 486 **(6)**

c. Give short notes on:
(i) Interrupt handling in 8085.
(ii) Advantages of Virtual Memory.
(iii) Asynchronous Data Transmission. **(6)**

Q.9 a. Explain the PC/XT architecture based on the 8088 microprocessor. **(8)**

b. Give the features of PCI and ISA bus structures. **(8)**