ROLL NO. _____

Code: AE13 **Subject: COMPUTER ENGINEERING**

AMIETE – ET (OLD SCHEME)

Time: 3 Hours **DECEMBER 2011** **Max. Marks: 100**

NOTE: There are 9 Questions in all.

- **Please write your Roll No. at the space provided on each page immediately after receiving the Question Paper.**
- **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. Which of the following devices can be used to directly input printed text?

(A) OCR **(B)** OMR
(C) MICR **(D)** None of the above

b. Information Retrieval is faster from

(A) Floppy Disk **(B)** Hard Disk
(C) Magnetic Disk **(D)** None of the above

c. The part of machine level instruction, which tells the central processor what is to be done is:

(A) Operation Code **(B)** Address
(C) Operand **(D)** None of the above

d. What is the hexadecimal equivalent of decimal number (54977)

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

e. The word size of an 8086 processor is

(A) 8 bits **(B)** 16 bits
(C) 32 bits **(D)** 64 bits

f. An assembly language program is translated to machine code by

(A) an assembler **(B)** a compiler
(C) an interpreter **(D)** a linker

g. The sp register is typically used for accessing

(A) strings **(B)** memory
(C) stack **(D)** data segment

h. What does BIOS stand for

(A) Better Integrated Operating System
(B) Basic Input Output System
(C) Battery Integrated Input System
(D) Backup Input Output System

i Pipelining improves CPU performance due to

(A) Reduced memory access time
(B) Increased Clock Speed
(C) Introduction to parallelism
(D) Additional functional units

j. Modern processor chips may be classified as

(A) LSI **(B)** ULSI
(C) MIPS **(D)** SSI

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

Q.2 a. Differentiate between multiprocessing and a multiprogramming. **(3)**

b. What are the differences between Hardware, Software and Firmware? **(3)**

c. Explain the Flynn's Classification of Computers. Give suitable diagrams also. **(4)**

d. Define the term parallel processing. How is it achieved? Explain few mechanisms. **(6)**

Q.3 a. Convert 41.6875 from decimal to binary. **(2)**

b. Define operating systems. What are the functions of an operating system? **(6)**

c. What is difference between UNIX & DOS file maintenance commands? Give examples. **(6)**

d. Differentiate between a process and a thread. **(2)**

Q.4 a. Give the pin diagram and architecture diagram of 8086 microprocessor. **(6)**

b. Explain the priority levels of interrupts in 8085. Explain with examples. **(4)**

c. Explain any three Addressing modes in 8085 with examples. **(6)**

Q.5 a. Give a diagram and explain the interfacing of an external memory with 8085. **(4)**

b. With the help of a suitable example, explain direct mapping from main memory to cache. **(6)**

c. Differentiate between the structure of a hard disk and a floppy disk. Also give diagrams to depict these structures. **(6)**

Q.6 a. What is the utility of Direct Memory Access in an I/O system? Give a diagram and explain the functions of 8237. **(6)**

b. Give a short note on RS-232 Standard. How is serial communication carried out in a system? Explain. **(4)**

c. Explain the working of any **TWO** out of the three devices given:
(i) LCD Display
(ii) Inkjet Printer
(iii) Magnetic Scanner **(6)**

Q.7 a. Describe the programming model and pin diagram of Pentium IV processor. **(8)**

b. Explain the programming model of any Pentium Processor. Also differentiate between real, protected and virtual modes in 8086. **(8)**

Q.8 a. Explain the working of any **TWO** of the following bus structures:
(i) PCI
(ii) ISA
(iii) EISA **(4+4)**

b. Explain the PC/XT architecture based on the 8088 microprocessor. **(8)**

Q.9 a. Give short notes on:

(i) 8253 Programmable Interval Timer/Counter
(ii) Segmented Memory
(iii) Synchronous Data Transmission **(6)**

b. Give a short note on BIOS. Give its distinct features. **(4)**

c. Explain the following with timing diagrams:-

(i) Memory read cycle
(ii) Memory write cycle **(6)**