AMIETE – ET (OLD SCHEME)

Code: AE13 **Subject: COMPUTER ENGINEERING**
Time: 3 Hours **Max. Marks: 100**

JUNE 2009

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.**

Q.1 Choose the correct or the best alternative in the following: (2×10)

a. Which of the Flynn's Classification architecture is not existing / not required?

(A) SISD **(B)** SIMD
(C) MISD **(D)** MIMD

b. The _____ code has a property of reflections.

(A) Gray **(B)** BCD
(C) XS-3 **(D)** 2421

c. Pipelining concept was introduced in 8086 due to _____.

(A) memory Segmentation **(B)** BIU & EU
(C) queue **(D)** all of above

d. _____ makes the instruction execution faster in normal instruction cycle.

(A) Cache Memory **(B)** Virtual Memory
(C) Associative Memory **(D)** All of above

e. Scanning done in Monitor is called as

(A) Vector scan. **(B)** Bit mapped scan.
(C) Raster scan. **(D)** None of above.

f. Invisible registers in 8085 are _____

(A) no invisible registers **(B)** w and z
(C) program counter **(D)** All of the above

g. Which device is used as standard pointing device in Graphical User Environment?

(A) Keyboard **(B)** Mouse
(C) Joystick **(D)** Track Ball

h. The programs that are as permanent as Hardware and stored in ROM are called as _____.

(A) software **(B)** hardware

(C) firmware **(D)** ROMware

i. The main memory of a computer has 2 cm blocks while the cache has 2 c blocks. If the cache uses the set associative mapping scheme with 2 blocks per set, then block k of the main memory maps to the set _____.

(A) (k mod m) of the cache **(B)** (k mod c) of the cache
(C) (k mod 2c) of the cache **(D)** (k mod 2 cm) of the cache

j. SCSI is the term related with

(A) storage. **(B)** network data transfer.
(C) keystroke rate. **(D)** picture resolution.

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

Q.2 a. Working and architecture of 8255 with its interfacing with 8086. **(10)**

b. A program to count number of words in a given string. **(6)**

Q.3 a. Explain descriptor format for 80386. **(4)**

b. What do you mean by protected mode memory addressing? **(4)**

c. Timing diagrams for the instructions: CALL, INX H. **(8)**

Q.4 a. How Cache performance in CISC architecture is taken care by RISC architectures? (Hint: Register Window). **(10)**

b. Design the circuit for parity generator & checker for 3-bit input data. Also show the communication linkages between them. **(6)**

(8)

Q.5 a. Which are the basic addressing modes in any of the microprocessor? Explain their usage for certain conditions with examples. **(10)**

b. Write an assembly program to sort 10 eight bit numbers in ascending form. **(6)**

Q.6 a. Show the complete interfacing of 7 segment LED using negative logic. **(6)**

b. Explain following terms:

(i) Zone bit recording **(ii)** Head skewing
(iii) Cylinder skewing **(iv)** Sector
(v) De bouncing **(10)**

Q.7 a. What is interrupt? How is it executed? What are different types of interrupts? **(8)**

b. Sketch the serial output waveform for character 'A' when it is transmitted with 9600 baud. **(4)**

c. Setup the 8254 as square wave generator with 1 ms period, if the input frequency is 1 MHz. **(4)**

Q.8 a. Describe about various bus structures like ISA, EISA, PCI. Why do we have different bus structures? **(8)**

b. Design "Direct Mapping" scheme for the data given below and explain its working.

Main Memory Size = 16K
Cache Size = 4K
Block Size = 256 words **(8)**

Q.9 a. Write a note on Virtual Memory with its advantages. **(8)**

b. Write an assembly program to convert a decimal number in any other given number system. **(8)**