

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 110405

Roll No.

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B.Tech.

(SEM. IV) THEORY EXAMINATION 2013-14

COMPUTER ORGANIZATION

Time : 3 Hours

Total Marks : 100

Note :- Attempt **all** questions. Each question carries equal marks.

1. Attempt any **four** parts of the following :

(a) What do you mean by error detection and correction code ?
Explain parity bit concept for the above.

(b) Explain in brief batch processing, time sharing, multiprogramming and parallel processing operating system.

(c) The following transfer statements specify a memory operation. Explain the memory operation in each case :

(i) $R_2 \leftarrow M [AR]$

(ii) $M [AR] \leftarrow R_3$

(iii) $R5 \leftarrow M [R5]$

(d) Why does increasing the amount of data that can be stored in a processor's register file, generally increase the performance of the processor ?

(e) Write short notes on the following :

(i) Common bus system

(ii) Bus arbitration.

- (f) What are the four essential elements of a number in floating point notation ?

2. Attempt any **four** parts of the following :

- (a) Explain the Booth's multiplication method and use this to multiply decimal numbers $(-12)(-18)$.
- (b) Explain addressing modes.
- (c) What is RISC ? Explain it with its characteristics.
- (d) What are advantages of general-register based CPU organization over stack based C.P.U. organization ?
- (e) Explain the working of incrementer with the help of circuit diagram.
- (f) Discuss the advantages and disadvantages of using a variable length instruction format.

3. Attempt any **two** parts of the following :

- (a) List and briefly define the possible states that define an instruction execution.
- (b) What is the difference between a hardwired implementation and a microprogrammed implementation of a control unit ?
- (c) What is the relationship between instruction and micro operations ?

4. Attempt any **two** parts of the following :

- (a) Explain memory hierarchy. Describe different access methods of the memory system.
- (b) Compare different cache mapping techniques.
- (c) Explain the need of auxiliary memory devices. How are they different from main memory ?

5. Write short notes on any **two** of the following :

- (a) Direct Memory Access (DMA)
- (b) Synchronous and Asynchronous Communication
- (c) Interrupts with their types and exceptions.