24165

B.Tech. (CSE) 4th Semester F. Scheme Examination,

May–2015

COMPUTER ARCHITECTURE AND ORGANISATION

Paper–CSE-210 F

Time allowed : 3 hours] *[Maximum marks : 100*

Note : *Attempt **five** questions in total. **Question No. 1 is compulsory** and attempt **one** question from each section.*

1. (a) Define computer architecture. 8×2½

(b) Differentiate between fixed and variable length instructions with example.

(c) Differentiate between direct and indirect addressing.

(d) Differentiate between interrupt and trap.

(e) What is parallel processing ?

(f) Differentiate between static and dynamic memory.

(g) What is hybrid instruction ?

(h) What is the role of control memory in computer organization ?

Section–A

2. (a) Design a combinational circuit with three inputs x, y, z and three outputs A, B, C. When the binary input is 0, 1, 2, 3 the binary output is one greater than the input when the binary point is 4, 5, 6, 7, the binary output is one less than the input. 10

(b) What do you mean by a multiplexer ? Design a 4 * 1 multiplexer using AND, OR and NOT gate. 10

3. (a) Describe Flynn's classification of computers. 10

(b) Draw and explain the multilevel viewpoint of a machine. 10

Section–B

4. (a) What are the characteristics of RISC computers ? 10

(b) Explain any five arithmetic micro instructions. 10

5. Explain various addressing modes with examples. 20

Section–C

6. Draw and explain instruction cycle. 20

7. (a) Define the term "locality of reference". How this concept is used in the design of memory system ? 10

   (b) Explain set associative mapping scheme. 10

Section–D

8. (a) State and explain the Amdahl's law. 10

   (b) How the throughput of a system can be enhanced with parallel mechanisms ? 10

9. (a) What do you mean by control memory ? How is it different than simple memory ? 10

   (b) What are the various type of instructions supported by the 8086 family ? Discuss each briefly. 10