Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 21381

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015

Fourth Semester

Computer Science and Engineering

CS 2253/CS 43/CS 1252 A/080250011/10144 CS 404 — COMPUTER ORGANIZATION AND ARCHITECTURE

(Common to Information Technology)

(Regulations 2008/2010)

(Also common to PTCS 2253/10144 CS 404 – Computer Organisation and Architecture for B.E. (Part-Time) Third Semester – CSE – Regulations 2009/2010)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is meant by stored program concept?
2. Define elapsed time.
3. Write the control sequence for execution of the instruction ADD (R3), RI?
4. State the applications of nano programming.
5. List out the types of data hazards.
6. What is the need for operand forwarding?
7. Write the functionality of memory management unit?
8. Differentiate between EPROM and EEPROM.
9. What is meant by cycle stealing?
10. List out the devices connected to the computer using PCI bus.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Describe zero-address instructions with a suitable example. (6)

(ii) Discuss various addressing modes in detail. (10)

Or

(b) Explain the various types of methods used for integer division operation and illustrate them with dividend (10) and divisor (3). (16)

12. (a) (i) Draw a single bus organization of the data path inside a processor and explain the basic operations performed. (8)

(ii) Draw the timing diagram for memory read operation for the following instruction: MOVE (R1), R2. (8)

Or

(b) Draw the microprogram sequencing flowchart for the instruction *ADD src, Rdst* and write the microinstruction for *ADD (Rsrc)+, Rdst* using microprogrammed control approach. (16)

13. (a) (i) Give an example that depicts structural hazard? (8)

(ii) Write notes on pipelining performance measurement techniques. (8)

Or

(b) Discuss in detail about branch prediction techniques. (16)

14. (a) (i) Compare Asynchronous DRAM and Synchronous DRAM. (8)

(ii) Analyze the working principle of Rambus Memory. (8)

Or

(b) (i) Describe the mapping functions used in cache memory system. (8)

(ii) Elaborate the magnetic tape systems. (8)

15. (a) Explain in detail about the working of Direct Memory Access (DMA). (16)

Or

(b) (i) Describe the interrupt service routines used in operating systems. (8)

(ii) List out the sequence of events take place during the processor sends a command to the SCSI controller. (8)