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Reg. No. :

Question Paper Code : 60374

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Seventh Semester

Electrical and Electronics Engineering

CS 2071/CS 608/10133 EEE 24 — COMPUTER ARCHITECTURE

(Common to Electronics and Instrumentation Engineering/Instrumentation and Control Engineering)

(Regulations 2008/2010)

(Also common to PTCS 2071 - Computer Architecture for B.E. (Part-Time) Sixth Semester – EEE – Regulations 2009)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. How CPU execution time is calculated?
2. Mention the use of assembler directive.
3. What is ripple carry adder?
4. What is meant by programmed multiplication?
5. Write the steps involved in executing the instruction Move(R1), R2.
6. Draw the diagram for a 4 – stage Pipeline.
7. Name any two cache replacement techniques.
8. What is the role of a MMU?
9. What is the need for interfacing?
10. Define an interrupt. How is it classified?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain about instruction format of MiniMIPS and various instructions with example. (8)
- (ii) Explain about various addressing modes in MiniMIPS with example. (8)

Or

- (b) (i) Write a program to find maximum value in a list of integers. Explain it. (5)
- (ii) Write a macro to find largest of three values. Explain it. (4)
- (iii) Explain pseudo instructions. (4)
- (iv) Write down the benefits and drawbacks of complex instruction. (3)
12. (a) (i) Write detailed notes on fast adders. (8)
- (ii) Explain the design of carry-look ahead logic. (8)

Or

- (b) (i) Demonstrate the multiplication of $(56)_{10}$ and $(76)_{10}$ using Booth algorithm. (8)
- (ii) Explain IEEE standard for representing floating point numbers. (8)
13. (a) Draw the schematic diagram of a microprogrammed control unit and explain its functioning. Compare it with hardwired control unit. (16)

Or

- (b) List the various pipeline hazards. Explain any one hazard by considering suitable examples. (16)
14. (a) Describe the different types of memories. (16)

Or

- (b) (i) Explain the Data storage and retrieval principles of Optical Disks. (8)
- (ii) Illustrate the address translation mechanism used in virtual memories. (8)

15. (a) (i) What is bus arbitration? Explain in detail with the role of daisy chaining. (8)
- (ii) Explain DMA data transfer with neat block diagram. (8)

Or

- (b) (i) Write an assembly language program that reads one line from the keyboard, stores it in memory buffer and echoes it back to the display. (8)
- (ii) What are the uses of interrupts in operation systems? (8)
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