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Question Paper Code : 91407

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2014.

Fifth Semester

Electronics and Communication Engineering

EC 2303/EC 53/10144 EC 605 – COMPUTER ARCHITECTURE AND ORGANIZATION

(Common to Sixth Semester Biomedical Engineering)

(Regulation 2008/2010)

(Common to PTEC 2303 – Computer Architecture and Organization for B.E. (Part – Time) Fourth Semester, Electronics and Communication Engineering Regulation 2009)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Name two special purpose registers.

2. Define data path.

3. What is a coprocessor?

4. What are the two attractive features of Booth's algorithm?

5. What is the drawback of assigning one bit position to each control signal?

6. Compare vertical organization and horizontal organization.

7. Define memory cycle time.

8. What are the characteristics of SRAMs?

9. When the privileged exception arises?

10. What are the two independent mechanisms for controlling interrupt request?

PART B — (5 × 16 = 80 marks)

11. (a) (i) How instructions are classified? Illustrate with suitable examples for instructions in each group. (10)

(ii) Explain briefly different type of data representation in detail. (6)

Or

(b) Explain the different types of addressing modes available with example. (16)

12. (a) Explain in detail the principle of carry look ahead adder. (16)

Or

(b) Mention the rules for floating point addition and subtraction and explain how they are implemented? (16)

13. (a) Explain the basic organization of hardwired control unit. Mention its advantages and disadvantages. (16)

Or

(b) Explain instruction pipeline with neat block diagram and also explain various hazards in instruction pipeline. (16)

14. (a) Define cache memory. Explain various cache mapping mechanism with neat block diagram. (16)

Or

(b) Describe associative memory organization with its basic cell and match logic. (16)

15. (a) What are the disadvantages of Strobe? How it is rectified in Handshaking signal? Briefly explain handshaking method of asynchronous data transfer with an example. (16)

Or

(b) (i) Describe vectored interrupt scheme with neat block diagram. (8)

(ii) Describe the characteristics of super scalar processing. (8)