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**Question Paper Code : X 60451**

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020

Fifth Semester

Electronics and Communication Engineering

EC 2303 – COMPUTER ARCHITECTURE AND ORGANIZATION

(Common to Sixth Semester Biomedical Engineering)

(Regulations 2008)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. What is a register ? State its role in computers.
2. Compare Instruction format with Instruction type.
3. Why is hardwired control preferred ? What is it ?
4. What is pipelining control ?
5. What is pipelining ?
6. What is microinstruction and microprogram ?
7. What is translation look aside buffer ?
8. Comment on locality reference.
9. What is the role of a coprocessor ?
10. What is the advantage of a Booth Algorithm ?



## PART – B

(5×16=80 Marks)

11. a) i) Explain the DMA organization and its advantages in processing many input/output instructions. (8)  
ii) What is meant by superscalar and vector processing ? (8)  
(OR)
- b) Discuss on the various types of interrupts in system organization. (16)
12. a) With flow chart and numerical example explain Booth's multiplication algorithm. (16)  
(OR)
- b) With relevant diagram and expressions, explain the operation of carry look ahead adder. (16)
13. a) i) Describe the organization of a typical micro programmed control unit organization with the help of a diagram. (8)  
ii) What is an instruction pipeline ? Describe the organization of a four-stage pipeline with the help of diagram. (8)  
(OR)
- b) i) Describe the structure of a typical microprogram sequencer in detail. (8)  
ii) Describe any two techniques for dealing data dependencies in pipelined computers. (8)
14. a) i) Explain in detail about the replacement policies of memory organization systems. (8)  
ii) Give the structure of semiconductor RAM memories. Explain the read and write operations in details. (8)  
(OR)
- b) Explain in detail about the cache memory organization, cache operation and address mapping. (16)
15. a) Stacks and subroutines need passing parameters through registers. Justify this statement using suitable calling program and subroutine. How I/O operations display few characters or line of characters. What are the various formats for it ? (16)  
(OR)
- b) How the different generations evolved paving way to the present generation ? What are the features of RISC and CISC processors ? How do Dual and Quad processing evolved ? (16)
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