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Question Paper Code: 53203

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

Third Semester

Computer Science and Engineering

15UCS303 - COMPUTER ORGANIZATION AND ARCHITECTURE

(Common to Information Technology)

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

1. The two phases of executing an instruction are _____ CO1- R
(a) Instruction decoding and storage
(b) Instruction fetch and instruction execution
(c) Instruction execution and storage
(d) Instruction fetch and Instruction processing
2. The addressing mode which makes use of in-direction pointers is _____ CO1-R
(a) Indirect addressing mode (c) Relative addressing mode
(b) Index addressing mode (d) Offset addressing mode
3. Floating-point numbers are normally a multiples of size of a CO2-R
(a) Bit (b) Nibble (c) Word (d) Byte
4. The pipelining process is also called as _____ CO3-R
(a) Superscalar operation (c) Von Neumann cycle
(b) Assembly line operation (d) None of the mentioned
5. The number successful accesses to memory stated as a fraction is CO4-R
called as _____
(a) Access rate (b) Miss rate (c) Success rate (d) Hit rate

PART – B (5 x 3= 15 Marks)

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| 6. | What are the Most Common Fields Of An Instruction Format? | CO1-R |
| 7. | Define Register mode and Absolute Mode with examples. | CO1-U |
| 8. | Why floating point number is more difficult to represent and process than integer? | CO2-U |
| 9. | What are Hazards? State different types of hazards that can occur in pipeline. | CO3-R |
| 10. | Differentiate between Synchronous bus Asynchronous bus. | CO4-U |

PART – C (5 x 16= 80 Marks)

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| 11. | (a) Explain the various Instruction types with an examples. | CO1-U | (16) |
| | Or | | |
| | (b) Describe in detail the different kinds of addressing modes with an example. | CO1-U | (16) |
| 12. | (a) Write the algorithm for division of floating point numbers and illustrate with an Example. | CO2-U | (16) |
| | Or | | |
| | (b) Discuss the various hazards that might arise in a pipeline. What are the remedies commonly adopted to overcome/minimize these hazards. | CO2-U | (16) |
| 13. | (a) (i) Write the algorithm for non-restoring division technique. | CO3-U | (8) |
| | (ii) Draw the structure of two stage pipelining. | CO3-U | (8) |
| | Or | | |
| | (b) Define pipelining and what are the disadvantages of pipeline also explain the different types of pipelining. | CO3-U | (16) |
| 14. | (a) Discuss about CPU Cache and TLB. | CO4- U | (16) |
| | Or | | |
| | (b) Explain in detail about standard I/O interface. | CO4- U | (16) |
| 15. | (a) Explain briefly about Measuring and improving cache performance | CO4- U | (16) |
| | Or | | |
| | (b) Explain with the block diagram the DMA transfer in a computer system. | CO4- U | (16) |