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Question Paper Code: 53203

B.E. / B.Tech. DEGREE EXAMINATION, SEP 2020

Third Semester

Computer Science and Engineering

15UCS303 - COMPUTER ORGANIZATION AND ARCHITECTURE

(Common to Information Technology)

(Regulation 2015)

Duration: One hour

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any Six of the following Questions)

1. Component of CPU which is responsible for comparing contents of two pieces of data is CO1-U
(a) ALU (b) CU (c) Memory (d) Register
2. The smallest entity of memory is called as CO1- R
(a) Cell (b) Block (c) Cell (d) Block
3. CPU gets the address of next instruction to be processed from CO1-U
(a) Instruction register (b) Memory address register (c) Index register (d) Program counter register
4. _____ is a fast memory that operates at electronic speed. CO2- U
(a) Main Memory (b) Cache (c) Primary Storage (d) Secondary Storage
5. Which among the following is the fastest cache mapping function? CO3-U
(a) Fully associative mapping (b) Set associative mapping
(c) Direct mapping (d) None of the above
6. A floating point number that has a 0 in the MSB of mantissa is said to have _____ CO3-U
(a) Overflow (b) Underflow
(c) Important number (d) Important number

7. Operands of an instruction are not available at the time expected in the pipeline and as a result pipeline is stalled is called CO3- R
- (a) Hazards (b) Structural Hazards
- (c) Data Hazards (d) Control Hazards
8. Larger page sizes leads to - _____ CO4-U
- (a) Transfer errors (b) Increase in operation time
- (c) Increase in access time (d) Decrease in performance
9. In _____ mode, the I/O module and main memory exchange data directly, without processor involvement. CO4-U
- (a) Programmed I/O (b) DMA (c) Interrupt-driven I/O (d) All of the above
10. The periods of time when the unit is idle is called as _____. CO4- R
- (a) Stalls (b) Bubbles (c) Hazards (d) Both (a) and (b)

PART – B (3 x 8 = 24 Marks)

(Answer any Three of the following Questions)

11. Explain different methods of binary tree representation. CO1- U (8)
12. Illustrate the operations of binary search tree with an example. CO2-U (8)
13. What is a Data hazard? How do you overcome it? And discuss its side effects. CO3- U (8)
14. Draw the 11-item hash table resulting from hashing the keys 12,44,13,88,23,94,11,39,20,16 and 5 using the hash function $h(i) = (2i+5) \bmod 11$. CO4- App (8)
15. Describe the different types of mapping schemes of cache memory. CO4- U (8)