Reg. No. : | | | | | | | | | | |

Question Paper Code: 53203

B.E. / B.Tech. DEGREE EXAMINATION, DEC 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 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

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

4. Floating-point numbers are normally a multiples of size of a CO2-U

   (a) Bit (b) Nibble (c) Word (d) Byte

5. The addressing mode which makes use of in-direction pointers is _____ CO1-U

   (a) Indirect addressing mode (c) Relative addressing mode

   (b) Index addressing mode (d) Offset addressing mode

6. 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

7. 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

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 the above

10 The number successful accesses to memory stated as a fraction is called as _____ CO4-U

(a) Access rate (b) Miss rate (c) Success rate (d) Hit rate

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11.	Draw and explain block diagram of simple computer with the functional units.	CO1- U	(8)
12.	Illustrate Booth's algorithm with an example.	CO2-U	(8)
13.	Explain the floating point Add/Subtract rules. With a detailed flowchart explain how floating point addition/subtraction is performed.	CO2- U	(8)
14.	Draw and explain the simple combine data path for the MIPS architecture.	CO3- U	(8)
15.	Explain the virtual memory address translation and TLB with necessary diagram.	CO4- U	(8)