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

Question Paper Code: 33203

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

Third Semester

Computer Science and Engineering

01UCS303 - COMPUTER ORGANIZATION AND ARCHITECTURE

(Regulation 2013)

Duration: One hour Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. Which of the following would take less execution time?

   (a) Memory –Memory instruction (b) Register – Register instruction
   (c) Register – memory instruction (d) Memory – register instruction

2. Add 20(R0,R1) , R2 is an example of

   (a) Indirect addressing (b) Absolute addressing
   (c) Indexed Addressing (d) Direct Addressing

3. Arithmetic Logic Unit (ALU) is used to perform

   (a) addition (b) left shift (c) right shift (d) all of these

4. The number of bits for exponent field in double precision floating point number is

   (a) 8 bits (b) 11 bits (c) 20 bits (d) 23 bits

5. The throughput of an ideal pipeline with *k* stages is _____ instruction/clock cycle

   (a) *k* (b) *k*-1 (c) 1 (d) 2

6. Which of the following MIPS instruction takes more execution time?

   (a) Load word(lw) (b) Store word(sw) (c) R-format(add) (d) Branch(beq)

7. Multithreading an interactive program will increase responsiveness to the user by

(a) continuing to run even if a part of it is blocked
(b) waiting for one part to finish before the other begins
(c) asking the user to decide the order of multithreading
(d) None of these

8. In a multithreaded environment _____

(a) Each thread is allocated with new memory from main memory
(b) Main thread terminates after the termination of child threads
(c) Every process can have only one thread
(d) No termination

9. The signal sent to the device from the processor to the device after receiving an Interrupt is

(a) Interrupt-acknowledge (b) Return signal
(c) Service signal (d) Permission signal

10. The extra time needed to bring the data into memory in case of a miss is called as

(a) Delay (b) Propagation time (c) Miss penalty (d) Data latency

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Explain the logical and control operations in MIPS assembly language in detail. (8)

12. Explain the non–restoring and restoring division algorithms. Simulate the same for *23/5*. (8)

13. Describe in detail about pipeline processing. (8)

14. Explain the Multiple-instruction multiple-data streams (MIMD) parallel architecture functions with suitable block diagram. (8)

15. What are the types of implementation in virtual memory? Explain in detail the address translation mechanism of each of them. (8)