KUMARAGURU
college of technology
character is life

Register Number: …….

B.E DEGREE EXAMINATIONS: NOV/DEC 2014

(Regulation 2013)

Third Semester

COMPUTER SCIENCE AND ENGINEERING

U13CST302: Computer Architecture

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. In immediate addressing, the operand is placed _____
   a) in memory
   b) after opcode in the instruction
   c) in the CPU register
   d) in stack
2. …….. register is used to keep track of address of the memory location where the next instruction is located.
3. Which of the following refers to the principle of locality concept used by cache?
   a) Random
   b) Write back
   c) Temporal
   d) Write through
4. The address of a page table in memory, is pointed by …….. register.
5. The signed 2's complement representation of (-5) is _____
   a) 0101
   b) 1010
   c) 1011
   d) 1101
6. In IEEE 32-bit representations, the mantissa of the fraction is said to occupy..…… bits.
7. The goals of both hardwired control and microprogrammed control units is to _____
   a) generate control signals
   b) access memory
   c) access the ALU
   d) cost a lot of money
8. Micro-programmed control unit is …… than hardwired control unit in terms of speed.
9. In magnetic disks, data is organized on the platter in concentric sets or rings called
   a) block
   b) track
   c) head
   d) sector
10. Interrupts which are initiated by an I/O device are called …….. interrupts.

PART B (10 x 2 = 20 Marks)

(Not more than 40 words)

11. How many 128 X 8 memory chips are needed to provide a memory capacity of 4096 X 16?
12. What is an assembler? Give the advantages of assembly language programming.
13. What is locality of reference? Mention the two types of locality of references.
14. Define dirty bit and miss penalty.
15. Draw the format of single and double precision floating point numbers.
16. What are the different ways to represent a negative number? Give examples.
17. What do you mean by superscalar operation?
18. Define micro routine and microinstruction.
19. Outline the purpose of USB interface.
20. What is meant by cycle stealing?

PART C (5 x 14 = 70 Marks)

(Not more than 400 words)

Q.No. 21 is Compulsory

21. What do you mean by pipeline hazard? Explain the various types of hazards in detail.

22. a) Describe the different types of addressing mode with suitable examples.

(OR)

b) (i) Describe the concept of stack organization in detail. (7)

(ii) the steps involved in instruction processing with an example. (7)

23. a) Explain how the logical address is translated into physical address in virtual memory system with diagrams.

(OR)

b) With neat sketches explain the different mapping functions used in cache memory.

24. a) Design a fast adder circuit by employing the carry look ahead addition principle.

(OR)

b) (i) Explain the booth algorithm for multiplication of two signed operands. (7)

(ii) List the rules used for addition, subtraction, multiplication and division of floating point numbers. (7)

25. a) What is DMA transfer? Explain the process of data transfer using DMA controller.

(OR)

b) Discuss the methods for handling interrupts from multiple devices.

****