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

## Question Paper Code: 33203

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2019

Third Semester

Computer Science and Engineering

01UCS303 - COMPUTER ORGANIZATION AND ARCHITECTURE

(Regulation 2013)

Duration: Three hours                                                Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1.  State the basic functional units of a computer.

2.  What do you mean by stored program concept?

3.  What is Subword Parallelism?

4.  List the features of booth multiplication algorithm.

5.  What is meant by Data path?

6.  What is operand forwarding? When it is used?

7.  Give an example for WAW Hazard.

8.  Differentiate between multiprogramming and multitasking?

9.  Draw the structure of memory hierarchy.

10. Define Bus. What are the different buses in a CPU?

PART - B (5 x 16 = 80 Marks)

11. (a)  Explain the logical and control operations in MIPS assembly language in detail.   (16)

Or

(b) Write in detail about various addressing modes. (16)

12. (a) Explain the non–restoring and restoring division algorithms. Simulate the same for *23/5*. (16)

Or

(b) Explain the floating point addition steps and algorithm in detail. (16)

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

(ii) Discuss about Data path considerations. (8)

Or

(b) Discuss the various hazards that might arise in a pipeline. What are the remedies commonly adopted to overcome/minimize these hazards. (16)

14. (a) Explain the Multiple-instruction multiple-data streams (MIMD) parallel architecture functions with suitable block diagram. (16)

Or

(b) Explain how performance efficiency is achieved by Multicore Processors. (16)

15. (a) What are the types of implementation in virtual memory? Explain in detail the address translation mechanism of each of them. (16)

Or

(b) How does a virtual address get translated into physical address? Explain in detail with the neat diagram. Explain the use of TLB. (16)

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