

(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 131662

Roll No.

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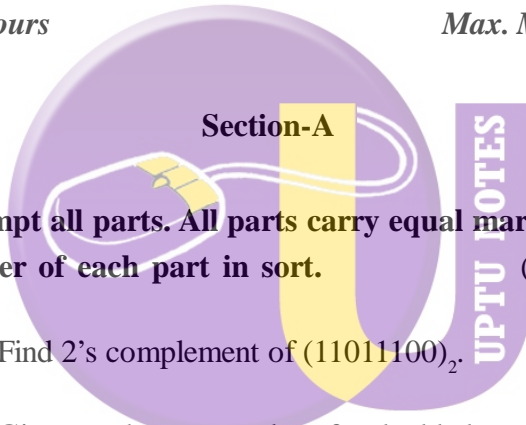
B.TECH

Theory Examination (Semester-VI) 2015-16

COMPUTER ARCHITECTURE & ORGANIZATION

Time : 3 Hours

Max. Marks : 100



1. Attempt all parts. All parts carry equal marks. Write answer of each part in sort. (2×10 = 20)

- (a) Find 2's complement of $(11011100)_2$.
- (b) Give any three examples of embedded processor chips.
- (c) What do you mean by interrupt?
- (d) Draw the block diagram of a computer system.
- (e) Discuss the various hazards that might arise in a pipeline.
- (f) What is Multiprogramming & Pipelining?

- (g) What do you mean by effective address of data.
- (h) What is Address Mapping?
- (i) Write down the general formulas for floating-point operations.
- (j) What is the need of Cache memory?

Section-B

2. Attempt any five questions from this section.

(10×5 = 50)

- (a) What is DMA? Explain DMA operation with a suitable diagram.
- (b) Draw and explain virtual memory organization.
- (c) Discuss various classifications of parallel processing mechanisms in uniprocessor Computers. Also discuss why array computers are termed as parallel computers?
- (d) Design a 4-bit Carry-Look ahead Adder and explain its operation with an example.
- (e) List various OS types and explain any one of them.

- (f) What do you mean by design methodology? Write a short note on register level components.
- (g) What is DMA? Why DMA is preferred over other methods for transferring data between expansion cards and computer memory?
- (h) Describe CPU organization in detail along with features.

Section-C

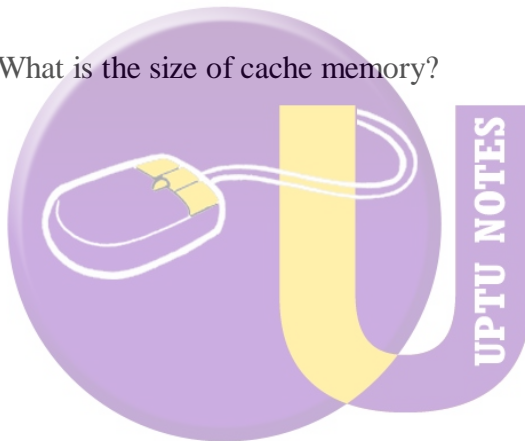
Note : Attempt any two questions in this section. (15×2 = 30)

- 3. Define Booth's algorithm. Is it possible to design signed number Multiplication by using Booth's algorithm? Draw a flow-chart and perform multiplication for signed number.
- 4. Write a short note on the following :
 - (a) PLD
 - (b) Programmed I/O
 - (c) Bus Structure
- 5. What are different types of pipelining? Explain each of them thoroughly. Also write a short note on performance and hazard of pipelining.

OR

What is Cache Memory? How is it implemented? A two way set associated cache memory uses blocks of four words. The cache can accommodate a total of 2048 words from main memory. The main memory size is 128K x32.

- (i) Formulate all pertinent information required to construct the cache memory.
- (ii) What is the size of cache memory?



(4)