



Reg. No. : .....

Name : .....

**First Semester M.Tech. Degree Examination, February 2015  
(2013 Scheme)**

**ELECTRONICS AND COMMUNICATION**

**Stream : Signal Processing**

**TSC 1002 : DSP System Design**

Time : 3 Hours

Max. Marks : 60

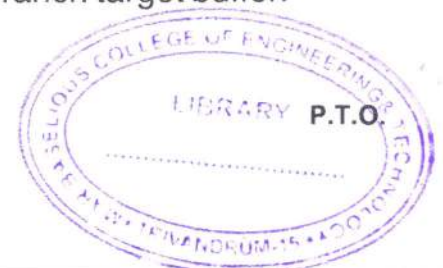
Answer **any two** questions from **each** Module.

**MODULE – I**

1. Obtain the expression for comparing the MAC operation using Distributed Arithmetic. What is the limitation of Distributed Arithmetic ?
2. Explain with example, IEEE 754 single and double precision floating point representation format.
3. a) What is Residue number system ? Explain the conversion of RNS to decimal using CRT.  
b) Convert  $(3/2/4/2)$  and  $(5/3/2/1)$  to decimal w.r. to RNS  $(8/7/5/3)$ .

**MODULE – II**

4. a) How many total bits are required for a DM Cache with 16 KB of data and 4 word blocks, assuming a 32 bit address ?  
b) Explain the optimization techniques to improve Cache performance.
5. Consider a machine with a 4-way associative Cache with a capacity of 8 KB. The main memory can accommodate a maximum of 512 MB. If Cache block size is 64 bytes, indicate how many bits of the address are used for tag, index and offset ?
6. Explain dynamic and static branch prediction techniques. Also, give the steps involved in handling an instruction in a processor with a branch target buffer.





## MODULE – III

7. a) Explain the different types of indirect addressing modes supported by C 6713 processor.  
b) Explain the features of code composer studio of TMS 320C6713 processor.
  8. a) List and explain the features of C6713 DSK board.  
b) Explain the structure of internal memory of C6713 processor.
  9. Briefly explain the type of instructions in a TMS 320C 6X processor. Write an assembly language program to find the factorial of a number.
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