Day: Saturday   Time: 11:00 AM TO 2:00 P.M.
Date: 26-11-2016   Max. Marks: 60

N.B.:
1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Answers to both the sections should be written in **SEPARATE** answer book.
4) Assume suitable data if necessary.
5) Draw neat diagrams **WHEREVER** necessary.

SECTION-I

Q.1   What is backward linear prediction? Draw prediction error filter structure and   **(10)**
explain it.

OR

Explain how the Yule Walker equations can be solved using Levinson- Durbin   **(10)**
Algorithm.

Q.2   Explain Recursive Least Square (RLS) algorithm with the exponential   **(10)**
weighting factor.

OR

Enumerate in detail the properties of adaptive lattice- ladder algorithm.   **(10)**

Q.3   What are the computational requirements of non-parametric power spectrum   **(10)**
estimates? Discuss in detail.

OR

What are the advantages of parametric method over non-parametric method?   **(10)**
Using Bartlett method, explain power spectrum estimation.

SECTION -II

Q.4 a) What is pipelining? How pipelining increases the clock rate?   **(05)**
      b) What is a circular buffer? State the parameters needed to handle the circular   **(05)**
buffer.

OR

Q.4   What is parallel processing? Explain how parallel processing will increase   **(10)**
clock rate?

Q.5   Enlist the features of TMS 320C6X processor family.   **(10)**

OR

Q.5   Discuss the sine generation program using eight points with DIP switch   **(10)**
control.

Q.6   Describe Daubechies wavelet. Generate a basis matrix of size 8*8 using   **(10)**
Daubechies filters. Show that Daubechies matrix is orthogonal.

OR

Q.6   What is the need for time –frequency analysis? Discuss the concept of time   **(10)**
frequency analysis with suitable tiling diagram.

*   *   *   *

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*   *   *   *

Day: **Monday**
Date: **28-11-2016**
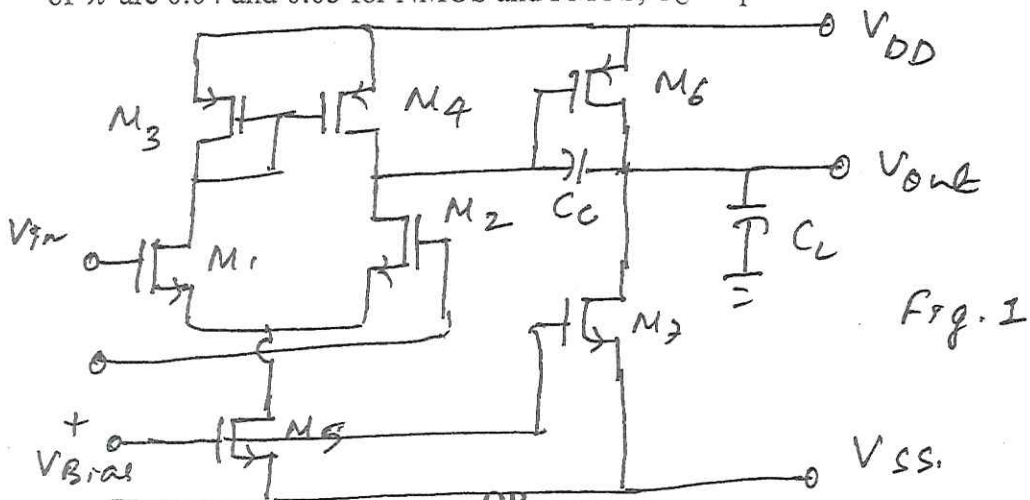
Time: **11:00 AM TO 2:00 P.M.**
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5) Assume suitable data, if necessary.

SECTION - I

Q.1 Which are the types of modeling used for MOS transistor? Give overview. **(10)**

OR

Explain MOS transistor with suitable diagram. **(10)**

Q.2 What are current sinks and sources? **(10)**

OR

How current mirror is importance in analog VLSI design? **(10)**

Q.3 Discuss CMOS Inverter. **(10)**

OR

Which are the steps of differential amplifier design? **(10)**

SECTION - II

Q.4 What are the steps for design of two stage OP – AMP? **(10)**

OR

Why compensation is required in OP- AMP? Discuss compensation techniques in brief. **(10)**

Q.5 Calculate gain, GB, SR and Pdiss for two stage Miller OP – AMP operating in weak inversion as shown in fig 1. The specifications are I_{D5} = 200 nA, I_{D7} = 500 nA, L= 1μm, values of n are 1.5 and 2.5 for PMOS and NMOS, KT / q = 0.026, V_{DD} = 1.5 V, V_{SS} = - 1.5V, values of λ are 0.04 and 0.05 for NMOS and PMOS, C_C = 5pF. **(10)**

Fig. 1

OR

Explain low voltage OP – AMP. **(10)**

Q.6 Describe switched capacitor amplifier. **(10)**

OR

How switched capacitor integrator are designed? **(10)**

*   *   *

Day: Monday

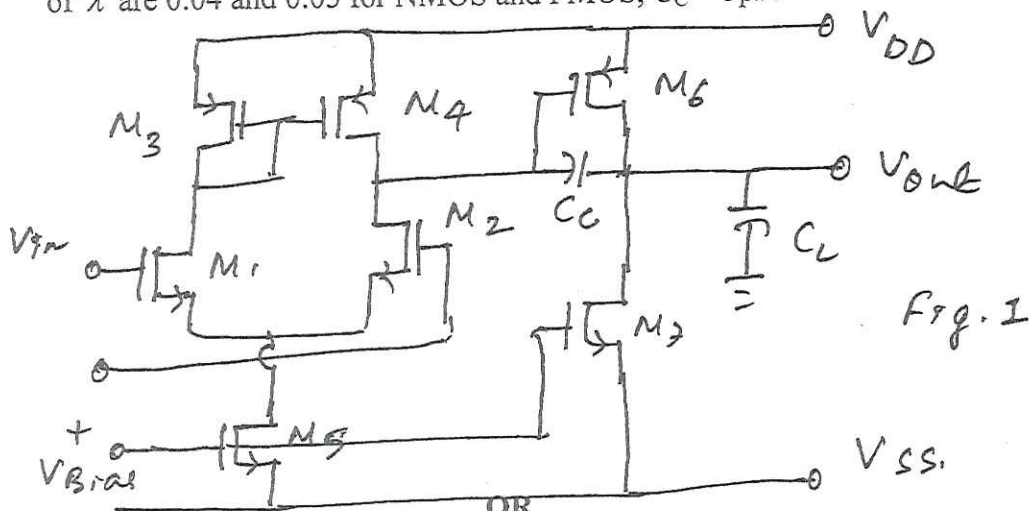Date: 28-11-2016

Time: 11:00 AM-TO 2:00 P.M.

Max Marks. 60

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Day: Wednesday
Date: 30-11-2016

Time: 11·00 A·M· To 2·00 P.M.
Max Marks: 60

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5) Answers to both the section should be written in **SEPARATE** answer book.

SECTION-I

Q.1   Derive the expression for received power for free space model.   **(10)**

OR

Describe the mechanism of scattering. Using Radar cross section model, find the received power due to scattering.

Q.2   Explain cell splitting technique in detail. What are its disadvantages?   **(10)**

OR

What is handoff? Explain the different handoff strategies in detail.

Q.3   Describe the transmission and reception in CDMA system with one example.   **(10)**

OR

Draw RAKE receiver. Explain its working for CDMA.

SECTION-II

Q.4   Explain Radio resource connection establishment operation in call set up within a GSM system with neat diagram.   **(10)**

OR

Draw the GSM architecture and explain function of each block in detail.

Q.5   Explain the MIMO system in brief. What are its advantages and disadvantages?   **(10)**

OR

What is V- BLAST? Explain V- BLAST architecture for MIMO system.

Q.6   Draw LTE architecture and explain its components in detail.   **(10)**

OR

Describe the basic operation of GSM/GPRS.

*   *   *   *   *

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