Code: 13A04804 **R13**

B.Tech IV Year II Semester (R13) Advanced Supplementary Examinations July 2018

RF INTEGRATED CIRCUITS

(Electronics and Communication Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) Write the conditions for resonance in parallel RLC network.
(b) What is reflection coefficient in RF system?
(c) What is the relation between bandwidth and rise time for 1st order systems?
(d) What is figure of merit for a MOS devices?
(e) Define noise figure.
(f) What is mixer? Why the uses of mixer?
(g) What is meant by negative resistance oscillators?
(h) What is the difference between filter and loop filter?
(i) Define phase noise.
(j) What is CDMA?

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 (a) Explain in detail 'Pi' and 'T'-matching of a network.
(b) Explain in detail the basic architecture of a RF system.

OR

3 (a) Compare parallel RLC and series RLC networks.
(b) Explain about passive IC components interconnects in detail.

UNIT – II

4 (a) Draw and explain about shunt-series amplifier and write its applications.
(b) Draw and explain about CS-amplifier for a single tuned amplifier.

OR

5 Explain and derive bandwidth estimation using open circuit time constant and short circuit time constant.

UNIT – III

6 (a) Discuss about thermal noise, flicker noise and noise figure.
(b) Explain in detail LNA design.

OR

7 Explain about mixer design and sub sampling mixers.

UNIT – IV

8 (a) Explain about class A, AB RF power amplifier with neat diagrams.
(b) Explain about charge pumps and loop filters.

OR

9 Write short notes on:
(a) Voltage controlled oscillators.
(b) Negative resistance oscillators.

UNIT – V

10 (a) Explain about GSM radio architectures in detail with suitable diagram.
(b) Discuss about integer-N synthesis and fractional frequency synthesis.

OR

11 Write short notes on:
(a) UMTS radio architectures.
(b) CDMA radio architectures.

*****