Code: 13A04804

R13

B.Tech IV Year II Semester (R13) Regular Examinations April 2017

RF INTEGRATED CIRCUITS

(Electronics and Communication Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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

(a) What are the conditions for resonance in parallel RLC network?
(b) What is skin effect?
(c) Define reflection coefficient.
(d) State the relation between bandwidth and rise time for first order system.
(e) Write a note on excess noise.
(f) What is the advantage of sub sampling mixer?
(g) List the applications of PLL.
(h) Why is the isolator placed at the output of the amplifier?
(i) Write a note on ring oscillator.
(j) Define frequency synthesizer.

PART – B

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

UNIT – I

2 Explain in detail about the architecture of Radio Frequency system.

OR

3 Explain transmission medium and reflections in radio frequency system.

UNIT – II

4 Prove that a long channel MOSFET transconductance depends only on the square root of bias current.

OR

5 Discuss the method of short circuit time constant for estimating the bandwidth of the system

UNIT – III

6 Discuss in detail about FLICKER noise in MOSFETs.

OR

7 Briefly explain the mixer design considerations.

UNIT – IV

8 Explain in detail about class F amplifiers.

OR

9 Explain about different negative resistance oscillators with neat sketch.

UNIT – V

10 Explain the method of frequency synthesis using fractional – N synthesizers.

OR

11 Draw the block diagram of UMTS radio architecture and explain in detail.

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