

B.Tech IV Year II Semester (R13) Advanced Supplementary Examinations July 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) Brief about behavior of wire at radio frequencies.
  - (b) Write a note on Q factor of parallel RLC circuit.
  - (c) Differentiate between distributed and lumped systems.
  - (d) Define rise time and delay time.
  - (e) Write noise figure equation.
  - (f) List different types of multiplier - based mixers.
  - (g) Draw the block diagram of General power amplifier model.
  - (h) which amplifier is introduced to overcome the crossover distribution that occurs in class B.
  - (i) List different types of resonator technologies.
  - (j) Draw the block diagram of generic transceiver.

**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 Define the T-match circuit and find out the net Q factor of the circuit.

**UNIT – II**

- 4 Derive an expression for characteristic impedance and propagation constant of lossy transmission line.

**OR**

- 5 Discuss the method of open circuit time constant for estimating the bandwidth of the system.

**UNIT – III**

- 6 Discuss the behavior of LNA topologies with its design constraints.

**OR**

- 7 Discuss in detail about sub sampling mixers.

**UNIT – IV**

- 8 Explain the operation of class A power amplifier and find its maximum drain efficiency.

**OR**

- 9 Explain in detail about linearized PLL models.

**UNIT – V**

- 10 Draw the block diagram of GSM radio architecture and explain brief.

**OR**

- 11 Explain the following:

- (a) PLL.
- (b) Charge pumps.

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