

**B.TECH SEM - VII (2007 COURSE) (E & TC ENGG.) : WINTER -
2017**

SUBJECT: RADIO WAVE PROPAGATION & RF ENGINEERING

Day: **Friday**
Date: **12/01/2018**

W-2017-2632

Time: **02.30 PM TO 05.30 PM**
Max. Marks: 80

N.B.:

- 1) **Q. No. 1 and Q. No. 5 are COMPULSORY.** Out of the remaining attempt any **TWO** questions from each section.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written **SEPARATE** answer book.
- 4) Draw neat labeled diagrams **WHEREVER** necessary.

SECTION-I

- Q.1**
- a) Explain Ground wave radio propagation. (05)
 - b) Explain matching with lumped elements. (05)
 - c) Explain Noise, Dynamic Range and source of Noise in RF circuit. (04)
- Q.2**
- a) Explain Troposcatter communication. (07)
 - b) Discuss some propagation phenomenon that can influence the operation of microwave systems. (06)
- Q.3**
- a) What is Smith chart? What are its applications? (07)
 - b) With suitable example explain the design of chebyshev transformer. (06)
- Q.4**
- a) Explain different factor to be consideration in design of an RF Amplifier. (07)
 - b) Explain the noise figure of a passive Two-Port Network. (06)

SECTION-II

- Q.5**
- a) Explain low Noise Amplifier Design. (05)
 - b) Explain Balanced Mixer. (05)
 - c) Draw radiation patterns of resonant and non-resonant antenna. (04)
- Q.6**
- a) Explain amplifier design using constant operating gain circle. (07)
 - b) Explain following terms: (06)
 - i) Two port power gain
 - ii) Stability
 - iii) Stability circle
- Q.7**
- a) Explain the Oscillator using a common Emitter BJT and common Gate FET. (07)
 - b) Explain design of single ended mixer. (06)
- Q.8**
- a) Explain Effective aperture and Radiation efficiency in detail. (07)
 - b) Write short note on: Wireless communication systems. (06)

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