

GUJARAT TECHNOLOGICAL UNIVERSITY
ME- SEMESTER II- EXAMINATION – SUMMER 2015

Subject Code: 2724110**Date: 26/05/2015****Subject Name: Advances in Wireless Communication****Time: 2:30 PM – 5:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain fast and slot fading for mobile radio. Explain Rayleigh Fading with require equation. **07**
 (b) Explain significance of time-flat, frequency-flat, time-selective and frequency-selective wireless channels with equations. **07**
OR
- Q.2** (a) Explain all sources of the noise in the wireless channel **07**
 (b) Explain link budget from earth station to satellite with a suitable example **07**
OR
 (b) Explain link budget from satellite to mobile terminal with a suitable example. **07**
- Q.3** (a) Explain direct-sequence modulation with the spreading equation and matched-filter receiver. **07**
 (b) Explain Walsh-Hadamard sequences, and Gold codes. **07**
OR
- Q.3** (a) Explain multiple-access interference with reference to the advantages of the CDMA for wireless. **07**
 (b) Explain power control for the near-far problem. **07**
- Q.4** (a) Explain maximal-ratio combining techniques of space diversity on receive **07**
 (b) Explain MIMO in terms of co-antenna interference and basic baseband channel model. **07**
OR
- Q.4** (a) Explain Ergodic capacity, Outage capacity, two other special cases of the Log-Det formulas. **07**
 (b) Explain singular-value decomposition of the channel matrix. **07**
- Q.5** (a) Explain Alamouti code with all properties. **07**
 (b) Explain differential space-time block code in details. **07**
OR
- Q.5** (a) Explain Turbo-BLAST architecture in details. **07**
 (b) Explain keyhole channels **07**
