**I M.Tech - I Semester – Regular / Supplementary Examinations
December 2018**

ADAPTIVE AND SMART ANTENNAS
(MICROWAVE & COMMUNICATION ENGINEERING)

Duration: 3 hours   Max. Marks: 60
Answer the following questions.

1. a) Explain about switched beam antennas.   8 M

   b) Explain basic principles to design a smart antenna.   7 M

(OR)

2. a) Explain the subspace based Data model.   8 M

   b) Discuss capon's minimum variance method.   7 M

3. a) Discuss multiple sidelobe canceller and the maximum
      SINR Beam former.   8 M

   b) Explain briefly about Statistical optimum beam forming for
      maximum SNR.   7 M

(OR)

4. a) Explain Adaptive algorithms for beam forming.   8 M

   b) Explain the RLS Algorithm and its functionality.   7 M

5. a) What is mutual coupling ? What are its effects?   8 M

   b) What are the parameters that affect an Ad-Hoc network
      due to inefficient antenna.   7 M

(OR)

6. Neatly explain types of signal processing algorithms for the
   design of a smart antenna.   15 M

7. a) What is co channel suppression and explain pros and cons
      of co channel suppression.   8 M

   b) Explain Space-time processing for DS-CDMA.   7 M

(OR)

8. Draw and explain briefly about MIMO for a single user data
   rate limits.   15 M