Code: **ECMC2T5B**

PVP 12

I M.Tech - II Semester - Regular Examinations - December 2013

SOFTWARE RADIO

(MICROWAVE & COMMUNICATION ENGINEERING)

Duration: 3 hours Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1. a) What is a software radio? Explain the characteristics and benefits of software radio. 7 M

   b) Describe the different RF receiver front-end topologies and compare them. 7 M

2. a) Explain the design and operation of
      i) decimator
      ii) interpolator 7 M

   b) Describe the design and analysis of DFT filter banks. 7 M

3. a) Compare the direct digital synthesis and analog synthesis methods for signal generation. 7 M

   b) Explain the different sources of spurious signals in a DDS system. 7 M

4. a) Describe the common ADC architectures and compare. 7 M

b) Explain the different techniques to improve data converter performance. 7 M

5. a) Explain the different benefits of smart antennas. 7 M

b) Explain the vector channel models used with smart antenna systems. 7 M

6. a) Distinguish between DSPs, ASICs and FPGAs for digital implementation of software radios. 7 M

b) Distinguish between Von-Neumann architecture and Harvard architecture. 7 M

7. a) Describe the IP and Transport protocols used in Internet working system. 7 M

b) Explain the common object request broker architecture. 7 M

8. a) Describe the implementation of a Joint Tactical Radio System (JTRS). 7 M

b) Write short notes on Spectrum ware. 7 M