[4959] - 1086

B.E. (E&TC)

C : Software Defined Radio (SDR)

(2012 Course) (Elective - I) (Semester - I)

Time :2.30 Hours] *[Max. Marks :70*

Instructions to the candidates:-
  1) *Neat diagrams must be drawn wherever necessary.*
  2) *Figures to the right indicate full marks.*
  3) *Assume suitable data, if necessary.*

Q1) a) Explain the benefits of SDR. **[8]**

   b) What is intermodulation distortion. Derive the expression for 3rd order intermodulation distortion. **[6]**

   c) Explain decimation process with spectral diagram. **[6]**

OR

Q2) a) Explain the role of Antenna and Low Noise Amplifier used in SDR. **[8]**

   b) Explain the following parameters w.r. to Dynamic range considerations of data converters. **[6]**

   i) Percentage FSR utilization.

   ii) Harmonic distortion.

   c) Explain the role of Interpolation in SDR. **[6]**

Q3) a) Explain with neat diagram the phoned antenna array system. **[9]**

   b) What is MIMO system? State and explain the channel capacity expression of MIMO. **[9]**

OR

Q4) a) Draw & explain the block diagram of Switched Beam Antenna array system. Compare Switched Beam & Adaptive Array System. **[9]**

   b) Explain with neat diagram space - Time Trellis coding for transmit STAP. **[9]**

Q5) a) Draw neat block diagram of OFDM receiver. Explain the function of FFT block. **[8]**

    b) Explain the Cognitive Radio capabilities. **[8]**

<div align="center">OR</div>

Q6) a) Compare and contrast CR & SDR. **[8]**

    b) Explain the OFDM & its application in CR. **[8]**

Q7) a) Case study on GNV Radio. **[8]**

    b) Explain Network Interoperability. **[8]**

<div align="center">OR</div>

Q8) Write a short note on **[16]**

    a) CR for public safety.

    b) Embedded based PSCR.

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