

Total No. of Questions : 08]

SEAT No. :

P3607

[Total No. of Pages : 2

[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 phased 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]

P.T.O.

- Q5)** a) Draw neat block diagram of OFDM receiver. Explain the function of FFT block. [8]
b) Explain the Cognitive Radio capabilities. [8]

OR

- 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]

OR

- Q8)** Write a short note on [16]
a) CR for public safety.
b) Embedded based PSCR.

