Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 91431

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019
Seventh Semester
Electronics and Communication Engineering
EC 6014 – COGNITIVE RADIO
(Regulations 2013)

Time : Three Hours   Maximum : 100 Marks

Answer ALL questions

PART – A   (10×2=20 Marks)

1. Identify the layers used in architecture implications of SDR.

2. Compare software architecture with radio architecture.

3. Formulate the design rule in SDR architecture.

4. Justify SDR's capability to make it a Cognitive Radio with 3 major applications.

5. Define Spectral efficiency.

6. Outline Self aware cognitive radio.

7. Sketch the cognitive behavior model.

8. Express the world model in CRA.

9. Elaborate the challenges in spectrum management.

10. What is a spectrum hand off ?

PART – B   (5×13 = 65 Marks)

11. a) i) Show the reference design for a SDR implementation mentioning the Software Radio reference platform parameters.   (7)

    ii) Explain the Spectrum management implications in SDR.   (6)

                    (OR)

    b) Point out how technology tradeoffs takes place in Software Defined Radio.   (13)

12. a) i) Interpret the interfaces used in plug and play module of SDR. (6)

    ii) Identify the components of Digital back end in SDR and explain. (7)

    (OR)

  b) i) Categorize the essential functions of SDR. (6)

    ii) Explain the Software Architecture of an SDR. (7)

13. a) Discuss about the location and environment awareness in the nature and in wireless systems. (13)

    (OR)

  b) Examine about various modules present in the Cognitive radio. (13)

14. a) Elaborate the design rules which includes the functional component interfaces. (13)

    (OR)

  b) Discuss the components of orient, plan and decide phases in detail. (13)

15. a) Write detailed notes on :
    i) Cross layer design in XG networks. (6)
    ii) Inter-network and Intra-network spectrum sharing. (7)

    (OR)

  b) Classify the Spectrum Sensing techniques, explain how it is utilized in transmitter detection. (13)

PART – C (1×15 = 15 Marks)

16. a) With physical architecture, discuss about the uses, characteristics and objectives of cognitive radio in xG network. (15)

    (OR)

  b) Explain the various interface topologies available for SDR with its individual applications. (15)

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