Reg. No. :

Question Paper Code : 40941

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018

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. List out the potential benefits of SDR.

2. Write about selectivity of a radio channel.

3. What are the characteristics and properties of joint control in SDR ?

4. How does the hardware architecture support the SDR ?

5. Generalize the main error sources in Cognitive Radio.

6. State the principle of radiovision sensors.

7. List out the phases in cognition cycle.

8. Give the ontology structure for SDR subsystem components.

9. Mention the upper layer issues in XG networks.

10. Relate spectrum hand off latency with spectrum mobility.

PART – B   (5×16=80 Marks)

11. a) i) Neatly explain the Functional model of a software radio node.   **(8)**

      ii) Describe the architecture implications of software defined radio.   **(8)**

                     (OR)

   b) Explain the Technology Tradeoffs for SDR.   **(16)**

12. a) i) Discuss the hardware architecture of Software Defined Radio. (8)

   ii) Interpret the interfaces used in plug and play module of SDR. (8)

(OR)

   b) i) With a block diagram explain the working of SDR transceiver. (8)

   ii) Demonstrate the ideal SDR architecture with suitable diagram. (8)

13. a) Describe the details of environment awareness engine. (16)

(OR)

   b) i) Summarize the Propagation Characteristics involved in environment awareness. (8)

   ii) Brief on artificial intelligence techniques used in CR. (8)

14. a) i) Describe the design rules for cognitive radio architecture. (8)

   ii) Devise the flexible functions of the component Architecture in Cognitive radio. (8)

(OR)

   b) i) Investigate how CRA identifies self, owner and home network. (8)

   ii) Discuss the reinforce hierarchical sequences in Cognitive Radio Architecture. (8)

15. a) i) Elaborate the spectrum management challenges and the Spectrum analysis. (8)

   ii) Discuss the main functions for cognitive radio in XG network architecture. (8)

(OR)

   b) i) Classify the concept of spectrum sharing and explain the details. (10)

   ii) Examine the Cross layer challenges in spectrum management. (6)