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**Question Paper Code : 71714**

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2017.

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. What is Software-Defined Radio (SDR)?
2. List out some potential benefits of SDR.
3. Illustrate the components present in the RF front end.
4. What is CORBA and list out languages supported by SDR.
5. Define Aware radios.
6. What is optimization of radio resources?
7. Define cognitive radio.
8. Comment on "Prayer behaviour".
9. What is Next Generation Communication Network?
10. What is spectrum management?

PART B — (5 × 16 = 80 marks)

11. (a) Discuss in detail the evolution of architecture of Software-Defined Radio (SDR). (16)

Or

- (b) Discuss in detail about the technology tradeoffs in SDR with neat diagram. (16)

12. (a) Describe the software architecture of SDR with neat diagrams. (16)

Or

- (b) Describe in detail on top level component interfaces of Software-Defined Radio (SDR). (16)

13. (a) What are the primary concepts of Position awareness cognitive radio? Explain with neat architecture. (16)

Or

- (b) (i) Write short notes on environmental awareness in CR. (8)

- (ii) Discuss any one Artificial Intelligent techniques and its working principle with neat diagram. (8)

14. (a) Discuss the primary functions, components and design rules of Cognitive Radio. (16)

Or

- (b) (i) What is cognition cycle? Discuss the various phases involved in cognition cycle with neat diagram. (10)

- (ii) Draw the "Architecture Maps" of Cognitive radio with neat diagram. (6)

15. (a) Explain each component and its functionality of xG network architecture with neat diagram. (16)

Or

- (b) Write short notes on :

- (i) Spectrum Mobility. (8)

- (ii) Upper layer issues in xG Networks. (8)