Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 80325

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

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. Define software flexibility and affordability.
3. What do you mean by Virtual machine and Middleware?
4. What is Plug and Play module?
5. How environment awareness acquire in cognitive radio?
6. What is the optimization of radio resources?
7. Compare cognitive radio and software radio.
8. Define waking bahaviour.
9. Comment on the term "spectrum hole" and justify the concept with diagram.
10. What is spectrum sensing and spectrum mobility?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss the evolution of architecture of Software-Defined Radio (SDR) in detail. (10)

(ii) Write the potential benefits of SDR. (6)

Or

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

12. (a) Discuss briefly about hardware architecture of SDR with neat diagrams. (16)

Or

(b) (i) Briefly describe in detail on top level component interfaces of Software-Defined Radio (SDR). (10)

(ii) Explain the computational processing resources in SDR. (6)

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

Or

(b) Discuss any two Artificial Intelligent Techniques suitable for cognitive radio and its working principle with neat diagram. (16)

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 and explain the "Architecture maps" of Cognitive radio with neat diagram. (6)

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

Or

(b) Write Short notes on :

(i) Inter-network and Intra- network spectrum sharing. (10)

(ii) Upper layer issues in xG Networks. (6)

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