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

Question Paper Code : 50423

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2017

Seventh Semester

Electronics and Communication Engineering

EC6014 – Cognitive Radio

(Regulations 2013)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A **(10×2=20 Marks)**

1. What is the need for software defined radio ?
2. To implement SDR, What are the architectural implications involved ?
3. Comment on computational processing resources of SDR architecture.
4. Mention the technology tradeoffs involved in design of software radio.
5. What is meant by 'making radio-self aware' ?
6. Why is environment awareness needed in cognitive Radio ?
7. Mention the functions of Cognitive radio.
8. State four applications of cognitive radio.
9. What are the spectrum management functions ?
10. What is meant by spectrum mobility ?

PART – B **(5×16=80 Marks)**

11. a) Explain the architecture evolution of software radio.

(OR)

b) Explain the architecture implications of software radio.

12. a) Explain the architecture model of the software radio.

(OR)

b) Explain the computational resources involved in the design of software radio. Also discuss on the top level component interfaces used.

13. a) Explain about environment aware computing used in cognitive radios.

(OR)

b) Explain about optimisation of radio sources. Explain the role of artificial intelligence in the design of cognitive radios.

14. a) i) Explain the cognitive radio architecture based on cognition cycle. (10)

ii) Explain the design rules that are to be followed in developing cognitive radio. (6)

(OR)

b) Explain how cognitive functions are implemented using cognitive components.

15. a) i) Discuss on the next generation wireless networks. (11)

ii) Discuss on the issues encountered in the upper layer of the network. (5)

(OR)

b) i) Explain any two techniques of spectrum sensing in cognitive radio environment. (11)

ii) Briefly discuss the effects of imperfect knowledge of noise power in spectrum sensing. (5)