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

Question Paper Code : 40422

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Seventh Semester

Electronics and Communication Engineering

EC 8071 – COGNITIVE RADIO

(Common to B.E. Computer and Communication Engineering/B.E. Electronics and Telecommunication Engineering)

(Regulations 2017)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List the key applications of SDR.
2. Illustrate the evolution of software-defined Radio.
3. Define Prayer behaviour.
4. Draw the physical architecture of CR.
5. Define DSA and explain how is DSA achieved?
6. List the challenges in spectrum sensing.
7. When will a pure ALOHA achieves its maximum throughput?
8. Define limited service polling system.
9. What are the benefits of Cognitive Radio?
10. Define self-aware cognitive radio.

PART B — (5 × 13 = 65 marks)

11. (a) With neat diagram, discover the essential functions of Software Radio.

Or

(b) Explain the architecture of SDR with neat diagrams and its implications.

12. (a) What is Cognition cycle? Discuss the various phases involved in cognition cycle with neat diagram.

Or

(b) Derive the various components of cognitive radio architecture.

13. (a) What is the need of DSA? Derive the capabilities of Cognitive Radio.

Or

(b) Explain the spectrum sharing models of Dynamic Spectrum Access.

14. (a) Discuss the MAC schemes relating to Cognitive Radio Networks.

Or

(b) Write on the operation of CSMA/CA scheme with its workflow operation.

15. (a) List and discuss the security threats related to Cognitive Radio.

Or

(b) Explain about CR-IoT framework with neat diagram.

PART C — (1 × 15 = 15 marks)

16. (a) Categorize and elaborate the design rules of Cognitive Radio.

Or

(b) Analyze the applications of Artificial Intelligence techniques in Cognitive Radio.

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