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Question Paper Code : X 20429

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020
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 are the tradeoffs required in SDR ?
2. List out the potential benefits of SDR.
3. Draw the topology of SDR.
4. What do you mean by Virtual machine and Middleware ?
5. What are the architecture goals of SDR ?
6. What are the challenges in CR ?
7. Describe any two design rules of cognitive radio.
8. Mention the parameters of cognition function.
9. Define spectrum handoff.
10. Differentiate Centralized and Distributed inter-network spectrum sharing.

PART – B **(5×13=65 Marks)**

11. a) i) Analyze the evolution of SDR software architecture. **(7)**
    ii) Describe about the functional model of SDR in detail. **(6)**

    (OR)

    b) Point out how technology tradeoffs takes place in software defined radio. **(13)**

12. a) i) What is the protocol stack of SDR ? **(7)**

ii) Explain the basic hardware architecture of a modern SDR. **(6)**

(OR)

b) Explain the interfaces used in plug and play modules. **(13)**

13. a) i) Explain the framework for self aware cognitive radios in detail. **(7)**

ii) Sketch and explain the cognitive behavior model in detail. **(6)**

(OR)

b) What are the primary concepts of location and environment aware cognitive radio ? Explain with neat architecture. **(13)**

14. a) Elaborate the design rules which includes the functional component interfaces. **(13)**

(OR)

b) Sketch the cognitive cycle model and explain the function of each block. **(13)**

15. a) Mention the functions of cognitive radios in XG network. **(13)**

(OR)

b) i) Assess the XG network functions with diagram. **(7)**

ii) Relate the concept of cooperative in spectrum sharing. **(6)**

PART – C **(1×15=15 Marks)**

16. a) Discuss about Typical Cognitive Radio Applications. **(15)**

(OR)

b) With the help of a case study, explain about range accuracy adaptation. **(15)**

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