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M.E. / M.TECH. DEGREE EXAMINATIONS, MAY/JUNE 2017

SECOND SEMESTER

COMMUNICATION SYSTEMS

CU16003 – COGNITIVE RADIO

(Regulation 2016)

Q. Code: 949867

Time: Three Hours

Maximum : 100 Marks

Answer ALL questions

PART A - (10 X 2 = 20 Marks)

1. Draw the block diagram of SDS transmitter.
2. What are the benefits of SDR?
3. State the basic goals of plug and play architecture.
4. What are the essential functions of the SDR?
5. Define Spectral efficiency.
6. Compare intelligent radio and policy based radio.
7. Classify the parameters of cognition function.
8. Sketch the cognitive behaviour model.
9. Name the Access types in XG networks.
10. Define spectrum hand off latency.

PART B - (5 X16 = 80 Marks)

11. (a) (i) Draw the architecture of SDR and explain. (8)
(ii) Elaborate the architecture implications of software defined radio. (8)
- (OR)**
- (b) (i) Explain various building components of SDR. (8)
(ii) List the applications of SDR. (8)

12. (a) (i) Explain the interfaces used in plug and play modules. (8)
(ii) Explain the various levels of abstraction of the SW radio. (8)

(OR)

- (b) (i) Explain the top level components topology in SDR interface. (8)
(ii) The software Radio act as a platform for the Cognitive Radio- Justify. (8)

13. (a) (i) Explore the features of Location awareness engine. (8)
(ii) Determine the Adaptation features used in the conceptual model. (8)

(OR)

- (b) (i) Outline the Design Consideration involved in implementation of Conceptual model for cooperative location awareness. (8)
(ii) Point out the need for a higher layer intelligence. (8)

14. (a) (i) Discuss the components of orient, plan and decide phases in detail. (8)
(ii) Briefly explain natural language encapsulation. (8)

(OR)

- (b) Elaborate the design rules which includes the functional component interfaces. (16)

15. (a) (i) What are the challenges faced by spectrum sensing? (8)
(ii) What are the challenges faced by spectrum mobility? (8)

(OR)

- (b) (i) Show how spectrum hand off occurs in XG networks. (8)
(ii) Interpret the Centralized spectrum sharing and Distributed Spectrum sharing in XG networks. (8)