QPC: RN23PHD404 AY 23 Reg. No | | | | | | | | | | |

GIET UNIVERSITY, GUNUPUR – 765022

Ph.D. (First Semester) Examinations, January – 2024

23SPPEEC1014 – Cognitive Radio

(ECE)

Time: 3 hrs Maximum: 70 Marks

The figures in the righthand margin indicate marks.

Answer ANY FIVE Questions **(14 x 5 = 70 Marks)**

		Marks
1.a.	Explain the architecture of SDR with neat diagrams and its implications.	7
b.	Briefly discuss the antenna design in cognitive radio.	7
2.a.	What are the various levels of abstraction of the SW radio? Explain.	7
b.	Write the various steps involved in the reception of the signal in SDR.	7
3.a.	Discuss in detail about the potential benefits and technology tradeoffs in SDR.	7
b.	Explain the network & hardware design considerations in SDR.	7
4.a.	Enumerate the Physical and Link layer parameters to improve the performance of communication link in CR.	7
b.	Draw and explain the generic transmitter for radio control in Cognitive radio.	7
5.a.	Describe RF front end in SDR architecture.	7
b.	Identify the components of Digital back end in SDR and explain.	7
6.a.	What are the challenges faced by spectrum sensing? Explain about Interference temperature model.	7
b.	Relate the concept of cooperative in spectrum sharing.	7
7.a.	Interpret the Topographical information and Propagation characteristics related to environment awareness engine.	7
b.	Classify the Spectrum Sensing techniques, explain how it is utilized in transmitter detection. Analyze the spectrum analyzing techniques used in XGnetworks.	7
8.a.	Show how spectrum hand off occurs in XG networks.	7
b.	Interpret the Centralized spectrum sharing and Distributed Spectrum sharing in XG networks. Outline the cross layer design in XG networks with diagrams	7

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