BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: MTECH **SEMESTER : II**
BRANCH: ECE(Wireless Communication) **SESSION : SP/22**

SUBJECT: EC605 COGNITIVE RADIO COMMUNICATION & NETWORKS

TIME:2 hr. **FULL MARKS: 50**

INSTRUCTIONS:
1.The question paper contains 5 questions each of 10 marks.
2.The missing data, if any, may be assumed suitably.
3.Before attempting the question paper, be sure that you have got the correct question paper.
4.Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q.1(a)	What is Software - Defined Radio? What are the potential benefits and limitations of SDR? The software Radio acts as a platform for the Cognitive Radio: -Justify	[5]
Q.1(b)	Draw the Hardware and Software Structure of SDR device and discuss it briefly.	[5]
Q.2(a)	Discuss the critical design challenges of CR networks	[5]
Q.2(b)	Discuss the various elements of the CR network and explain the various spectrum management functions of CR.	[5]
Q.3(a)	What is probability of false alarm and probability of detection?	[3]
Q.3(b)	Compare and discuss the narrowband and wideband spectrum sensing technique.	[3]
Q.3(c)	Classify the Spectrum Sensing techniques. Draw and describe the block diagram of cyclostationary feature detection-based spectrum sensing technique	[4]
Q.4(a)	Discuss interference temperature briefly.	[3]
Q.4(b)	Discuss Spectrum Sharing used for CRN spectrum management in detail?	[3]
Q.4(c)	Draw the mobile IP Architecture and explain the mobility management of heterogeneous wireless network in detail	[4]
Q.5(a)	Define Infrastructure and ad-hoc architecture of CRN.	[3]
Q.5(b)	Interpret the Centralized spectrum sharing and Distributed Spectrum sharing in XG networks.	[3]
Q.5(c)	Write short notes on Location Management and Handover Management of CRN.	[4]

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