Code No: 157FM

R18

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, February - 2025
5G TECHNOLOGIES
(Computer Science and Engineering - Cyber Security)

Time: 3 Hours **Max.Marks:75**

Note: i) Question paper consists of Part A, Part B.
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

1.a)	What do you mean by Broad band wireless communications?	[2]
b)	State the advantages of LTEA pro over LTEA technology.	[3]
c)	What are the principles of channel modeling?	[2]
d)	Discuss about channel modeling requirements.	[3]
e)	What is orthogonal frequency division multiplexing?	[2]
f)	Explain about NOMA in brief.	[3]
g)	What is meant by D2D standardization?	[2]
h)	Discuss about M2M type communication.	[3]
i)	List down physical layer techniques.	[2]
j)	Explain about pilot contamination.	[3]

PART – B

(50 Marks)

2.	Explain the importance of Spectrum Analysis and sharing for 5G.	[10]
	OR	
3.	Give an overview of 5G requirements.	[10]
4.	Discuss about propagation scenarios and challenges in the 5G modelling.	[10]
	OR	
5.	Describe 3GPP standards for 5G in detail.	[10]
6.	Explain about Orthogonal Frequency Division Multiple Accesses (OFDMA).	[10]
	OR	
7.	Discuss about Generalized Frequency Division Multiplexing (GFDM).	[10]
8.	Describe Extension of 4G D2D standardization to 5G.	[10]
	OR	
9.	Explain about radio resource management for mobile broadband D2D.	[10]
10.	Explain the following: a) Channel Estimation in Massive MIMO b) Deployment scenarios.	[5+5]
	OR	
11.	Explain the following: a) Beam-forming b) Massive MIMO with Imperfect CSI	[5+5]

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