



PRESIDENCY UNIVERSITY

BENGALURU

End - Term Examinations – May/June 2026

Date: 18-05-2026

Time: 01:00pm – 04:00pm

School: SOCSE	Program: CSN	
Course Code: CSN2506	Course Name: 5G Networking	
Semester: VI	Max Marks:100	Weightage: 50%

CO - Levels	C01	C02	C03	C04	C05
Marks	20	20	20	20	20

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

10Q x 2M=20M

1.	List any two key propagation scenarios considered in 5G channel modeling.	2 Marks	L1	C01
2.	List the main components of a Software Defined Radio (SDR) system.	2 Marks	L1	C01
3.	Define "White Spaces" in the radio spectrum.	2 Marks	L1	C01
4.	State what is the primary difference between 4G and 5G in terms of their core focus?	2 Marks	L1	C01
5.	State two specific examples of Ultra-Reliable Low Latency Communications (URLLC) applications.	2 Marks	L1	C01
6.	What is "Cooperative D2D" communication?	2 Marks	L1	C02
7.	Name the three specific "gains" achieved through D2D communication.	2 Marks	L1	C02
8.	Define the "Overlay" mode in D2D.	2 Marks	L1	C02
9.	Define Multi-hop D2D.	2 Marks	L1	C02
10.	Name two 3GPP releases that significantly advanced 5G NR Sidelink.	2 Marks	L1	C02

Part B

Answer the Questions.

Total Marks 80M

11.	a.	Explain the three fundamental multi-antenna techniques used in 5G Massive MIMO.	10 Marks	L2	CO1
Or					
12.	a.	Explain the three main pillars of 5G technology (eMBB, URLLC, mMTC)	10 Marks	L2	CO1
13.	a.	Explain Cognitive Radio and mention it's key functions.	10 Marks	L2	CO2
Or					
14.	a.	Explain Software Defined Radio (SDR) with relevance to 5G. Also draw the block diagram of SDR system.	10 Marks	L2	CO2
15.	a.	Illustrate the functional architecture of 5G with a focus on Network Function Virtualization(NFV) and Software Defined Networking(SDN).	10 Marks	L3	CO3
Or					
16.	a.	Illustrate all the four different propagation scenarios in 5G.	10 Marks	L3	CO3
17.	a.	Illustrate how a service-driven architecture allows for dynamic adaptation to the three pillars of 5G use cases.	10 Marks	L3	CO3
Or					
18.	a.	Illustrate the concept of Multi-Radio Dual Connectivity (MR-DC) and how it ensures seamless coexistence between 4G and 5G.	10 Marks	L3	CO3
19.	a.	Analyze the role of D2D in supporting Public Safety and National Security requirements	10 Marks	L4	CO4
Or					
20.	a.	Analyze the role of power control in D2D.	10 Marks	L4	CO4
21.	a.	Analyze the five fundamental principles of D2D.	10 Marks	L4	CO4
Or					
22.	a.	Analyze the key research challenges in D2D.	10 Marks	L4	CO4
23.	a.	Evaluate the principle of forward compatibility in 5G NR design. Why is this philosophically important for a standard that is expected to evolve over 10–15 years?	10 Marks	L5	CO5
Or					
24.	a.	Evaluate the principle of Lean Carrier Design in 5G NR design. Why is this important for 5G core design principles.	10 Marks	L5	CO5
25.	a.	Evaluate the three primary constraints that define an mMTC device? How do these constraints shape the physical layer design?	10 Marks	L5	CO5
Or					
26.	a.	Evaluate the three scenarios of V2X Communication.	10 Marks	L5	CO5