

K. J. Somaiya Institute of Engineering and Information Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

End Semester Exam

April - May 2022

(B.Tech) Program: Information Technology

Examination: TY

Semester: VI

Course Code: 1UITC603

Duration: 03 Hours

Course Name: **Wireless Technology**

Max. Marks: 60

Instructions:

- (1) All questions are compulsory.
- (2) Draw neat diagrams wherever applicable.
- (3) Assume suitable data, if necessary.

		Max. Marks	CO	BT level
Q 1	Solve any six questions out of eight.	12		
i)	Discuss Multiple Access Techniques.	02	CO1	U
ii)	Describe the functions of the MS and SIM.	02	CO2	U
iii)	Discuss protocol IEEE 802.11a.	02	CO3	U
iv)	Explain MANET.	02	CO4	U
v)	Describe the advantages of WPA.	02	CO5	U
vi)	Explain the element of CISCO UWN(Unified Wireless Network).	02	CO6	U
vii)	Describe cell splitting with its limitations.	02	CO2	U
viii)	Describe Wimax .	02	CO4	U
Q.2	Solve any four questions out of six.	16		
i)	Discuss the key requirement and drivers of 5G.	04	CO1	U
ii)	Why new infrastructure needed for GPRS? Which components are new and what is their purpose.	04	CO2	U
iii)	What is the need of mobile IP? Describe the process of discovery.	04	CO3	An
iv)	Describe ZigBee protocol stack.	04	CO4	A
V)	Explain the Bluetooth security architecture.	04	CO5	A
Vi)	Explain any four step in RF site survey process.	04	CO6	U
Q.3	Solve any two questions out of three.	16		
i)	A Mobile communication system is allocated RF spectrum of 25MHz and uses RF Channel bandwidth of 25 KHz so that a total number of 1000 voice channels can be supported in the system.	08	CO1	U

	<p>a) If the service area is divided into 20 cells with a frequency reuse factor of 4, calculate the system capacity.</p> <p>b) The Cell size is reduced to the extent that the service area is now covered with 100 cells. Compute the system capacity while keeping the frequency reuse factor 4.</p> <p>c) Consider the cell size is further reduced so that the same service area is now covered with 700 cells with the frequency reuse factor of 7. Calculate the system capacity.</p>			
ii)	Explain the GSM Architecture in detail and Differentiate GSM & GPRS.	08	CO2	U
iii)	Differentiate between Ad-hoc network and Infrastructure based Wireless Network and explain WLAN architecture.	08	CO3	An
Q.4	Solve any two questions out of three.	16		
i)	Explain the design issues of VANET and compare with MANET	08	CO4	An
ii)	Explain the encryption and decryption process using A5 and A8 algorithm in GSM.	08	CO5	A
iii)	Sketch and explain how H-REAP allows AP's to be remote from the WLC.	08	CO6	U

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