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R-17

Code: 7G381

IV B.Tech. II Semester Regular Examinations July 2021

Cellular & Mobile Communications

(Electronics and Communication Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks)

		Marks	CO	Blooms Level
UNIT-I				
1.	a) Draw the basic cellular system and explain the functions of three parts.	7M	CO1	L3
	b) Describe Analog cellular system with neat sketch.	7M	CO1	L3
OR				
2.	a) Explain the Co- channel interference reduction factor and derive the general formula for C/I.	7M	CO1	L5
	b) Determine the frequency reuse distance for K=4, 7, 12, 19	7M	CO1	L2
UNIT-II				
3.	a) What is SINAD meter? Explain?	7M	CO2	L1
	b) Define co-channel and co-channel interference. How does co-channel interference becomes a serious concern in the design of cellular mobile system.	7M	CO2	L5
OR				
4.	a) What is adjacent channel interference? Explain its influence on channel capacity.	7M	CO2	L1
	b) Illustrate the real time co-channel interference measurement at the mobile radio transceiver.	7M	CO2	L1
UNIT-III				
5.	a) Describe point to point transmission between two fixed stations over water or flat open land.	7M	CO3	L3
	b) Give the general form of a point-to-point model and discuss the merits of point-to-point model.	7M	CO3	L2
OR				
6.	a) Write short notes on various umbrella patterns.	7M	CO3	L2
	b) Derive the phase difference between direct and reflected paths.	7M	CO3	L6
UNIT-IV				
7.	a) Discuss the concept of frequency management concern to numbering the channels and grouping into the subsets?	7M	CO4	L3
	b) Describe the non-fixed channel assignment algorithms.	7M	CO4	L2
OR				
8.	a) Explain Channel sharing and Channel Borrowing in view of Frequency Management?	7M	CO4	L2
	b) Interpret how Access channels and paging channels under Set-up channels are helpful for Frequency management and Channel assignment.	7M	CO4	L2
UNIT-V				
9.	a) Draw the GSM architecture and Explain.	7M	CO5	L1
	b) Mention the salient features of C D M A.	7M	CO5	L6
OR				
10.	a) Explain the two-level algorithm to delay a handoff. What are the advantages?	7M	CO5	L3
	b) Define Hand-off and explain about the initiation of Hand-off.	7M	CO5	L3

****END****

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IV B.Tech. II Semester Regular Examinations July 2021

Digital Image Processing

(Electronics and Communication Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks)

	Marks	CO	Blooms Level
UNIT-I			
1. a) Discuss the image acquisition using single sensor and sensor strips.	7M	CO1	2
b) Explain the fundamental steps used in Digital image processing with neat block diagram.	7M	CO1	2
OR			
2. a) Illustrate the following mathematical tools used in digital image processing (i) Arrays and Matrix operations ii) Linear versus nonlinear operations	7M	CO1	3
b) Explain Hadamard transform and write its properties.	7M	CO1	1
UNIT-II			
3. a) Explain the following intensity transformation functions: (i) Log transformations (ii) Power-law transformations (iii) Contrast stretching.	7M	CO2&CO5	2
b) What is Histogram equalization? Analyze	7M	CO2&CO5	4
OR			
4. a) Discuss how the various filter masks are generated to sharpen images in spatial filters.	7M	CO2&CO5	2
b) Explain the image smoothing using ideal lowpass filters and Butterworth lowpass filters.	7M	CO2&CO5	2
UNIT-III			
5. a) Discuss the model of image degradation with neat sketch.	7M	CO3&CO5	2
b) Discuss about image restoration process when the images are degraded by noise only.	7M	CO3&CO5	2
OR			
6. a) Explain inverse filter. What is the draw back in inverse filter?	7M	CO3&CO5	1
b) Explain minimum mean square error (Wiener) filtering in image processing.	7M	CO3&CO5	2
UNIT-IV			
7. a) Analyze RGB and HSI color models.	7M	CO4&CO5	4
b) Write the equations for converting colors from HSI to RGB and RGB to HSI color models.	7M	CO4&CO5	5
OR			
8. a) Write note on pseudo color image processing.	7M	CO4&CO5	3
b) Briefly explain the basics of full color image processing.	7M	CO4&CO5	2
UNIT-V			
9. a) Explain image gradient and gradient operators for Edge detection.	7M	CO2&CO5	4
b) Explain simple global thresholding technique.	7M	CO2&CO5	2
OR			
10. a) What is coding redundancy? Explain coding redundancy.	7M	CO3&CO5	2
b) Explain general compression model with neat block diagram.	7M	CO3&CO5	1

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Hall Ticket Number :

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R-17

Code: 7G384

IV B.Tech. II Semester Regular Examinations July 2021

Wireless Communications & Networks
(Electronics and Communication Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks)

Marks CO Blooms
Level

UNIT-I

1. a) What are the limitations of conventional telephone system? Describe the various generations of wireless mobile communication. 7M
- b) What is the use of multiple access techniques? What type of access technique is used in G S M. Explain the same in detail. 7M

OR

2. a) Listing any 4 types of wireless communication systems, explain in detail with respect to the advantages and disadvantages offered by each of them Justify why you feel mobile communication has seen such a vast acceptance in modern society. 6M
- b) What is packet radio protocol? Explain pure and slotted Aloha in detail? 8M

UNIT-II

3. a) With block diagram, explain the first generation of cellular radio network. 6M
- b) What are the different classes of service provided by SSCP? Hence explain what you understand by the terms connectionless connection-oriented. 8M

OR

4. a) Explain in detail how Traffic routing takes place in wireless networks 7M
- b) Draw a figure of SS7 protocol standard and explain it. 7M

UNIT-III

5. a) Describe the three WTP Transaction Classes that may be invoked by WSP. 7M
- b) What are the various client components in a Wireless Application Environment? Elaborate. 7M

OR

6. a) Explain the two Mobile IP Registration Messages carried in UDP segments for the registration operation. 6M
- b) Explain the WAP Protocol Stack in detail. 8M

UNIT-IV

7. a) Describe Spread spectrum LANs 7M
- b) Explain the frame format for 802.11 in detail. 7M

OR

8. a) Discuss in detail the three transmission techniques commonly used for IR data transmission. 7M
- b) What are the different modes of 802.11 architecture? Which mode can be used to obtain a higher coverage area and how? 7M

UNIT-V

9. a) Which are the three interfaces in CDPD that specify a protocol stack corresponding to the OSI model. Explain them. 7M
- b) Explain the location and handoff management procedures in GPRS. 7M

OR

10. a) Explain the Physical elements that make up the CDPD architecture. 7M
- b) With a figure, explain the channel access cycle in HIPRLAN-1. 7M
