Hall Ticket Number :										

R11/R13

Code: 1G381

IV B.Tech. II Semester Advanced Supplementary Examinations June 2017

Cellular and Mobile Communications

(Electronics and Communication Engineering)

Max. Marks: 70 Time: 3 Hours

Answer any ***five*** questions

All Questions carry equal marks (**14 Marks** each)

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1.	a)	Explain the basic operation of a cellular system	7M
	b)	What is a micro cell? Explain the use of micro cells.	7M
2.	a)	Explain how to reduce Co-channel Interference.	7M
	b)	Derive an expression for C/I ration in case of directional antennas	7M
3.	a)	What is the use of directional antennas in mobile communications	7M
	b)	What are the parameters that influence the antennas in mobile communication?	7M
4.	a)	Draw and explain the signal coverage path in metro cities	7M
	b)	Suggest a suitable method for traffic control in the cellular system.	7M
5.	a)	Draw and explain the use of umbrella pattern antennas.	7M
	b)	How many cells are required for an area of 20000squar km to be covered with a radius of 2km, Spectrum of 2GHz and repetition of 7 with 35 kHz channel?	7M
6.	a)	Explain the channel assignment system of cellular communication.	7M
	b)	Propose a basic channeling system suitable for CDMA based network.	7M
7.	a)	Draw and explain the process of Handovers in a cellular system	7M
	b)	Explain the cause of dropped calls in a network.	7M
8.	a)	What are the differences between TDMA and CDMA	7M
	b)	Propose a GSM based cellular network	7M

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R11/R13

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IV B.Tech. II Semester Advanced Supplementary Examinations June 2017

Digital Image Processing

(Electronics and Communication Engineering)

Max. Marks: 70 Time: 3 Hours

Answer any ***five*** questions

All Questions carry equal marks (**14 Marks** each)

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1.	a)	Explain the components needed for an image processing system.	7M
	b)	Explain the concept of image sampling and quantization. What is the effect of it on the image?	7M
2.	a)	Generate one Haar basis for N=2	7M
	b)	Explain three properties of 2D- FFT	7M
3.	a)	Explain the process of histogram equalization with neat derivation.	7M
	b)	Explain smoothing linear filter and list out the limitations	7M
4.		Explain how to achieve simultaneous gray level range compression and contrast enhancement	14M
5.		What is purpose of color space? List and explain different color models with their applications	14M
6.	a)	Draw and explain degradation model? Recall the importance of inverse filtering with supporting equations.	7M
	b)	What are the differences between image restoration and enhancement? What do they have in common? List the applications of digital image restoration.	7M
7.	a)	Describe the three fundamental approaches to edge linkages	7M
	b)	Explain about adaptive thresholding.	7M
8.	a)	Explain fidelity criteria in detail with relevant equations.	7M
	b)	Discuss in detail about error free compression.	7M

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R11/R13

Code: 1G383

IV B.Tech. II Semester Advanced Supplementary Examinations June 2017

DSP Processors and Architectures

(Electronics and Communication Engineering)

Max. Marks: 70 Time: 3 Hours

Answer any ***five*** questions

All Questions carry equal marks (**14 Marks** each)

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1.	a)	Explain the advantages and disadvantages of P-DSPs?	8M
	b)	Illustrate the concept of pipelining and various stages that are involved in pipeline structure with an example?	6M
2.	a)	Write about number formats for signals and coefficients in DSP systems?	8M
	b)	Describe compensating filter with suitable equations?	6M
3.	a)	Explain data addressing capabilities of programmable DSPs?	6M
	b)	List out the speed issues in P-DSPs? Explain in detail?	8M
4.	a)	With the aid of suitable examples explain pipeline operation relevant to TMS320C54XX processors?	7M
	b)	Discuss about the data addressing modes of TMS320C54XX processors?	7M
5.	a)	Define Q-notation and illustrate the concept of numbers represented using Q-notation?	6M
	b)	Discuss about 2D signal processing and decimation filters?	8M
6.	a)	Develop a program to compute 8-point DFT using DIT-FFT algorithm?	8M
	b)	How signal spectrum is computed related to FFT algorithm? Explain?	6M
7.	a)	Show that, how DMA helps in increasing the processing speed of DSP processor?	4M
	b)	What is Multichannel Buffered Serial Port? With neat diagram explain various handshaking and control signals?	10M
8.	a)	Discuss about the CAD tools for FPGA based system design?	8M
	b)	Describe the overview of Open Multimedia Applications Platform?	6M

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Hall Ticket Number :										

R11/R13

Code: 1G386

IV B.Tech. II Semester Advanced Supplementary Examinations June 2017

Satellite Communications

(Electronics and Communication Engineering)

Max. Marks: 70 Time: 3 Hours

Answer any ***five*** questions

All Questions carry equal marks (**14 Marks** each)

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1. a) Discuss in detail the satellite applications in different areas.
   b) Discuss the progress made by India in satellite communications.

2. a) What are Kepler's laws? Explain three laws of planetary motion.
   b) Show that the radius of the GEO is 42,164.17 km.

3. Explain attitude and orbit control system (AOCS).

4. a) From the basic transmission theory define the necessary equation for the power received by an antenna from the satellite.
   b) List the major factors for a geo-stationary satellite design to have maximum performance at an acceptable cost.

5. a) What is meant by TDMA frame acquisition and frame synchronization?
   b) Write notes on DAMA and CDMA.

6. a) Explain about rectangular aperture.
   b) Explain about circular aperture.

7. Explain the important factors that influence the design of LEO satellite communication.

8. a) Explain in detail about GPS position locating principle.
   b) Write short notes on differential GPS.

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