Hall Ticket Number :										

R-11 / R-13

Code: 1G354

III B.Tech. I Semester Supplementary Examinations Nov/Dec 2017

Antennas and Wave propagation

(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)	Define and Explain the following terms related to antennas i) Directivity ii) Effective length iii) Bandwidth iv) Effective Area	8M
	b)	Find the Directivity of half wave dipole?	6M
2.	a)	Derive an expression for far field components of small loop antenna	6M
	b)	A dipole antenna of length 10cm is operating at 100 MHz with terminal current I_o=100mA. Find the Magnitude of E_r, E_θ and H_Φ at $\theta=45^0$, r=3m and t=1sec.	8M
3.	a)	Derive an expression for bandwidth of Broad side and End-fire arrays	7M
	b)	Show that the radiation resistance of folded dipole antenna is 292 Ω	7M
4.	a)	List out the design relations associated with Rhombic antenna. What are its applications?	7M
	b)	A multiple circular loop of radius 1.0 cm operates at 200MHz. Its radiation resistance is 10 Ω, find the number turns.	7M
5.	a)	Discuss the Fermet's principle for equality of path lengths	6M
	b)	The diameter of parabolic reflector is 2.0 m. It radiates a power of 50 W at an operating frequency of 3GHz. Its efficiency is 70% and its aperture efficiency is 60%. Find the antenna Power gain and Beam width.	8M
6.	a)	Bring out the important differences between ground wave and sky wave propagation of radio waves, highlighting the application areas of each of them.	6M
	b)	A transmitter operating at 1.0 MHz is required to produce ground wave field strength of 1.0 mv/m at a distance of 20 km. A short vertical transmitting antenna has an efficiency of 60%, σ = 4X105 mho/cm, ε_r=15. Determine the transmitter power required.	8M
7.	a)	Obtain an expression for electric field strength of space wave propagation.	7M
	b)	Explain the following i) Super refraction ii)Tropospheric scatter Propagation	7M
8.	a)	Define and derive an expression for skip distance for curved earth?	7M
	b)	Explain how radio waves are getting reflected from Ionosphere? Derive an expression for critical frequency of an ionized region in-terms of its maximum ionization density	7M

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Hall Ticket Number :										

R-11 / R-13

Code: 1G457

III B.Tech. I Semester Supplementary Examinations Nov/Dec 2017

Computer System Architecture

(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 Floating point representation. 7M

   b) Discuss the concept of complements used to represent signed numbers. 7M

2. a) Explain the organization of registers. 7M

   b) What is micro-operation? Explain how Register Transfer Language is related to this with an example. 7M

3. a) Explain the various addressing modes with examples. 7M

   b) Explain about Instruction Formats 7M

4. a) Explain why hardwired control unit is faster than micro programmed control unit. 7M

   b) What is microinstruction? How do we reduce number of microinstructions? 7M

5. a) Explain Booth Multiplication algorithm with example. 7M

   b) Derive and explain an algorithm for adding and subtracting 2 floating point binary numbers 7M

6. a) Explain about virtual memory. 7M

   b) What are the performance considerations of cache memory? 7M

7. a) With a neat sketch explain the working principle of DMA 7M

   b) Explain the I/O processor with a neat diagram. 7M

8. a) Explain how to resolve branch conflicts in Instruction pipeline. 7M

   b) Explain multiprocessor system inter connection network topologies. 7M

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Hall Ticket Number :										

R-11 / R-13

Code: 1G352

III B.Tech. I Semester Supplementary Examinations Nov/Dec 2017

Linear IC Applications

(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)	Draw the circuit diagram of Current Mirror and explain it operation	7M
	b)	What is a level Translator circuit? Why it is used with the Cascaded Differential amplifier	7M
2.	a)	Define Slew Rate. Explain the methods adopted to improve the Slew Rate.	7M
	b)	Define Output Offset Voltage. Explain methods to nullify Offset Voltage	7M
3.	a)	Derive the gain of Inverting and Non-Inverting amplifier	7M
	b)	Describe the operation of Three Op-Amp Instrumentation amplifier and give its application	7M
4.	a)	Explain how a Comparator can be used as a Zero Cross Detector	6M
	b)	Draw the circuit using Op-Amp to generate Triangular Wave and explain its operation	8M
5	a)	Draw the circuit of 1^{st} order and 2^{nd} order Butter Worth Active LPF and derive its Transfer Function	9M
	b)	Write note on All-Pass Filters	5M
6	a)	Draw the circuit diagram of Astable Multivibrator using 555 Timer and explain its operation	8M
	b)	With a neat diagram explain the working of PLL and give its applications	6M
7	a)	Explain the following ADC's with relevant diagrams and waveforms i) Dual slope ADC ii) Successive Approximation ADC	9M
	b)	Explain the R-2R ladder type DAC	5M
8	a)	With a neat Sketch explain the Operation of IC 1496 (Balanced Modulator)	7M
	b)	Explain any Two applications of Multipliers	7M

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