Code : 1G351

R11

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES :: RAJAMPET

(AUTONOMOUS)

III B.Tech. I Semester Regular Examinations, January 2014

Analog Communications

(ECE)

Time: 3 hours **Max Marks: 70**

Answer any FIVE Questions from the following
All questions carry equal marks (14 Marks each)

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1.	a)	Discuss the fundamental limitations of communication system?	7M
	b)	Discuss about different modulation methods?	7M
2.	a)	Explain the relation between carrier frequency and bandwidth of simplest bandpass system?	7M
	b)	What is DSB-SC modulator? Explain how the ring modulator is used for generation of DSB-SC signal?	7M
3.	a)	Draw the block diagram of phasing method for generating SSB Signal, for an audio base-band signal. What are the frequency requirement of the filter?	8M
	b)	Why is SSB not used for broadcasting?	6M
4.	a)	Explain with the help of block diagram, the Armstrong methods of generating FM signal?	7M
	b)	What is the need for balanced slope detector over slope detector?	7M
5.	a)	Explain about threshold effect in FM?	6M
	b)	Obtain, the expression for rms thermal noise current generated by two resistors when they are connected in series?	8M
6.	a)	With the help of a block diagram, explain the basic principle and working of phase modulated FM transmitter?	7M
	b)	Compare AM & FM transmitters from the bandwidth and power point of view?	7M
7.	a)	Discuss the drawbacks of tuned radio frequency receiver?	7M
	b)	List and explain the factors to be considered for the selection of IF?	7M
8.	a)	Compare analog vs Pulse Modulation schemes?	7M
	b)	Explain with the help of block diagram, how PWM is generated?	7M

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ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES :: RAJAMPET

(AUTONOMOUS)

III B.Tech. I Semester Regular Examinations, January 2014

Antennas and Wave propagation

(ECE)

Time: 3 hours **Max Marks: 70**

Answer any FIVE Questions from the following
All questions carry equal marks (14 Marks each)

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1. a) Explain the terms related to Antenna
   i. Gain
   ii. Directivity
   iii. Beam efficiency 10M

   b) Calculate the maximum effective aperture of an antenna which is operating at a wavelength of 2m and has directivity is 100. 4M

2. a) State and prove the Reciprocity theorem with respect to antennas. 7M

   b) Write short notes on
   i. Radiation resistance
   ii. Beam width 7M

3. a) What is broad-side array? Explain in-detail the structure, radiation pattern and principle of operation of broadside array antenna? 8M

   b) What is the principle of operation of a linear array antenna? What are its advantages? 6M

4. Describe Rhombic antenna with suitable diagrams. Derive expression for directive gain of rhombic antenna? Mention four applications of rhombic antenna. 14M

5. a) Explain the principle and operation of Horn antenna with suitable diagrams. Give some applications 8M

   b) Explain, how to measure the gain of an antenna. 6M

6. a) At what frequency a wave must propagate for the D-region to have an index of refraction 0.5? Given N=400 electrons/CC for D-region. 4M

   b) Describe the earth's behavior at different frequencies? 10M

7. a) Explain sky wave propagation with neat diagrams. 8M

   b) Derive the expression for relative refractive index. 6M

8. a) Explain effective earth's radius of space wave propagation. 8M

   b) What is duct propagation? 6M

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Code : 1G457

R11

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES :: RAJAMPET
(AUTONOMOUS)

III B.Tech. I Semester Regular Examinations, January 2014
Computer System Architecture
(ECE)

Time: 3 hours **Max Marks: 70**

Answer any FIVE Questions from the following
All questions carry equal marks (14 Marks each)

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1. a) Represent decimal number 8620 in a) BCD b) Ex-3 code c) 2421 code d) as a Hexadecimal number 8M

   b) What is Normalized floating point representation? Represent the Number +13 using ANSI 32 bit floating point numbers in Byte format. 6M

2. a) The following transfer statements specify a memory. Explain the memory operation in each case.

   a) R2 ← M[AR] b) M[AR] ← R3 c) R5 ← M[AR] 6M

   b) Show the block diagram of the hardware that implements the following register transfer statement: a) P: R2← R1 4M

   c) What is the difference between logical shift and arithmetic shift micro operations? Write symbolic notations for the shift micro-operations. 4M

3. a) Evaluate the arithmetic statement X = (A + B)*(C + D) using Three, Two, One and Zero address instructions. 12M

   b) What is an Interrupt? How they are classified? 2M

4. a) Discuss the design of microprogram sequencer for control memory. 7M

   b) Discuss the design of control unit. 7M

5. a) Explain the Hardware algorithm for add and subtract operations with flowchart. 7M

   b) Explain with example the Booth multiplication algorithm for multiplying binary integers in signed 2's complement representation. 7M

6. a) What is page fault? Write different page replacement algorithms. 6M

   b) What is cache memory? Explain Direct Mapping organization. 8M

7. a) What is the disadvantage of Strobe method? Explain with neat diagram source initiated transfer using Handshaking. 7M

   b) Explain with neat diagram the Daisy chain priority Interrupt. 7M

8. a) Discuss the difference between Loosely coupled multiprocessors and Tightly coupled multiprocessors. Explain about Crossbar switch interconnection structure. 7M

   b) What is Inter processor Arbitration? Explain Parallel Arbitration logic. 7M

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Code : 1G353 **R11**

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES :: RAJAMPET

(AUTONOMOUS)

III B.Tech. I Semester Regular Examinations, January 2014

Digital IC Applications

(ECE)

Time: 3 hours **Max Marks: 70**

Answer any FIVE Questions from the following
All questions carry equal marks (14 Marks each)

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1.	a)	Draw and explain with its function table about 2-input-cMOs-EX-OR gate?	6M
	b)	Explain CMOS dynamic electrical behavior?	8M
2.		Write short note s on the following.	
		a) Comparison of logic families?	7M
		b) Emitter coupled logic	7M
3.		Explain various VHDL data types with an example of each?	14M
4.	a)	Distinguish concurrent and sequential signal assignment statements?	6M
	b)	Discuss any four sequential statements with an example of each?	8M
5.	a)	Write a VHDL program for 4 bit comparator in behavioral model?	7M
	b)	Define MUX? Write VHDL program for 8-to-1 MUX?	7M
6.	a)	Write VHDL program for 32-bit ones counter?	8M
	b)	Explain barrel shifter with its diagram?	6M
7.		Draw and explain the operation of RS,JK,D,T flip flops with their pin diagrams and logic diagrams?	14M
8.		Explain in detail with neat sketches about Internal structure and timing of Dynamic RAM?	14M

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ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES :: RAJAMPET

(AUTONOMOUS)

III B.Tech. I Semester Regular Examinations, January 2014

Linear IC Applications

(ECE)

Time: 3 hours **Max Marks: 70**

Answer any FIVE Questions from the following
All questions carry equal marks (14 Marks each)

* * * * *

1.	a)	Explain the operation of Differential Amplifier with neat block diagram.	7M
	b)	Why the Level Translator is called as an Emitter Follower and explain.	7M
2.	a)	Explain the operation of Op-Amp. in Inverting and Non-Inverting modes.	7M
	b)	List out the characteristics of Op-Amp. and explain.	7M
3.	a)	Discuss the operation of two Op-Amp. Instrumentation Amplifier and its applications.	8M
	b)	Explain how Op-Amp. works as an Integrator.	6M
4.	a)	With neat schematic diagram explain the operation of Schmitt trigger.	7M
	b)	Discuss about Precision Rectifiers.	7M
5.	a)	With neat sketches explain the operation of First Order Butter-Worth filter.	7M
	b)	Design a Low Pass Filter at a cutoff frequency of 10K Hz, with a pass band gain of 2 and assume C=0.01μF.	7M
6.	a)	With neat diagram explain the operation of Monostable Multivibrator using 555 timer.	8M
	b)	Explain FSK demodulator with neat sketch.	6M
7.	a)	Explain about R-2R ladder DAC.	7M
	b)	Explain with a neat sketch the operation of Parallel Comparator.	7M
8.	a)	Explain in detail how Multipliers are classified.	7M
	b)	Explain the operation of Sample and Hold circuit in detail	7M

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R11

Code : 1GA51

ANNAMACHARYA INSTITUTE OF TECHNOLOGY & SCIENCES :: RAJAMPET

(AUTONOMOUS)

III B.Tech. I Semester Regular Examinations, January 2014

Magerial Economics and Financial Analysis

(Common to ME & ECE)

Time: 3 hours **Max Marks: 70**

Answer any FIVE Questions from the following

All questions carry equal marks (14 Marks each)

* * * * *

1. State and Explain the law of Demand .What are its Exceptions? 14M

2. What is Elasticity of Demand? Explain factors Governing Elasticity of Demand? 14M

3. From the following Information Calculate Break Even Point In units and in sales value?

Output	= 3000 units
Selling price per unit	= Rs 30
Variable Cost Per unit	= Rs 20
Total Fixed Cost	= Rs 20,000

14M

4. Define Monopoly? How Price and output are determined under Monopoly? 14M

5. Discuss the advantages and disadvantages of a Sole Trader? 14M

6. What are the sources of long term Finance? 14M

7. Prepare Final accounts for the year ending 31-2008

	Debit Rs	Credit Rs
Opening Stock	4,500	
Purchases	25,000	
Wages	2,500	
Salaries	2,000	
Postage	200	
Drawings	2,800	
Debtors	2,000	
Buildings	7,500	
Furniture	4,000	
Sales		30,000
Capital		16,500
Creditors		3,300
Interest received		700
	50,500	**50,500**

Additional Information:-

a) Closing Stock	=	Rs 90,000
b) Out Standing Wages	=	500
c) Interest Received In Advance	=	200

14M

8. State Significance of each of the following ratios and turn over's and explain how each one is calculated?
   a) Current Ratio
   b) P/E Ratio
   c) Debt turnover ratio
   d) Earnings per share

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