Code : 1G356

R11

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

III B.Tech I Semester Supplementary Examinations June/July 2014

Linear and Digital Integrated Circuits Applications

(Electrical ~~Engineering~~ & Electronics Engineering)

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. Define the following parameters of Op-Amp with relevant expressions.
   a) Slew Rate b) CMRR c) PSRR d) Drift
   e) Input and Output offset voltages. [14]

2. a) Design a current to voltage converter using Op-Amp and explain how it can be used to measure the output of a Photo Cell. [8]
   b) How an Op-Amp acts as an adder and Subtractor [6]

3. a) Design a ramp generator using 555 timer having an output frequency of approximately 5 KHz. [8]
   b) Give the block diagram of PLL and explain typical applications. [6]

4. a) Compare and contrast a dual slope ADC with a Successive approximation ADC. [6]
   b) For the DAC converter using R-2R Ladder Network
   (i) Determine the size of each step if R_f=27KΩ
   (ii) Calculate output voltage when the inputs are b0, b1, b2, b3 are at '5V'. 8]

5. Explain electrical parameters Speed of operation, Power dissipation and noise margin in CMOS. [14]

6. a) Draw and explain the circuit diagram of Open – collector output of TTL gate. [6]
   b) Explain with a neat diagram interfacing of TTL to CMOS gate. [8]

7. a) Implement the following on using Boolean function using 8X1 line multiplexer IC.
   $F(w,x.y.z) = \sum m(0,1,3,4,8,9,15)$ [8]
   b) Design full adder circuit using 3X8 decoder and suitable gates. [6]

8. a) Design mod-10 asynchronous counter using J-K Master – Slave flip-flops. Draw timing diagram for a continuous clock. [8]
   b) Draw logic diagram for the 74LS 293 asynchronous counter 'IC' and explain its operation. [6]

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R11

Code : 1G252

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

III B.Tech. I Semester Supplementary Examinations June/July 2014

Transmission of Electric Power

(Electical & Electronics Engineering *)*

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 three-phase transmission line 100 Km long has its conductors of 0.5 cm diameter spaced at the corners of an equilateral triangle of 120 cm side. Find the inductance per phase of the system. Derive the formula used. 14M

2. a) what is skin and proximity effects 6M

   b) A 3-phase over had transmission line has its conductors arranged at the Corners of an equilateral triangle of 2meters side. Calculate the capacitance of each line conductor per km. Given that diameter of each conductor is 1.25 cm 8M

3. Derive the expressions for A, B, C, D parameters of a nominal –T and π of a Medium length transmission lines. 14M

4. Starting from first principles, deduce the expression for ABCD constants of a long line in terms of its parameters. 14M

5. What is meant by power system transients? Develop the differential equation for a transient in the transmission system. How voltage and current expressions are established from the above differential equations? 14M

6. Write and explain different types of insulators used for overhead lines with neat diagrams. 14M

7. a) Write short notes on stringing charts. 6M

   b) A certain 3-phase equilaterally spaced transmission line has a total corona loss of 55 KW at 110 kv and a loss of 110 KW at 120 KV. What is the disruptive critical voltage between lines? What is the corona loss at 125kv? 8M

8. a) What is the necessity of grading of cables? Explain briefly the various grading methods of cables. 14M

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