III B.Tech. II Semester Supplementary Examinations Nov/Dec 2018
Digital and Data 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) With the help of block diagram explain PCM generation. 7M

    b) Draw the block diagram of Delta modulation system and explain its working 7M

2. a) Write in detail about
       i) ASK ii) FSK with waveforms and equations. 8M

    b) Explain the working of DEPSK system. 6M

3. a) Derive the expression for the probability of error for the Matched filter. 7M

    b) Explain non-coherent detection of FSK system. 7M

4. a) Explain the following:
       i.   Entropy   ii. Information rate   iii. channel capacity 6M

    b) Five source messages are probable to appear as m_1=0.4, m_2=0.15, m_3=0.15, m_4=0.15, m_5=0.15.Find coding efficiency for shanon-Fano coding 8M

5. a) The generated matrix for a (6,3) block code is given below

    $$G = \begin{pmatrix} 100\ 110 \\ 010\ 011 \\ 001\ 111 \end{pmatrix}$$

    Find all code vectors for this code. Consider any one message block contains an error to correct that by using syndrome calculations. 10M

    b) Explain Sequential decoding of convolution code. 4M

6. a) Describe the layered network architecture. 7M

    b) Explain about data communication protocols. 7M

7. a) Draw the OSI seven layer protocol hierarchy and list the functions of each layer. 8M

    b) List and describe the basic network models. 6M

8. a) Give the comparison between circuit switching and packet switching. 7M

    b) Explain about ATM. 7M

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R-11 / R-13

Code: 1G365

III B.Tech. II Semester Supplementary Examinations Nov/Dec 2018
Electronic Measurements and Instrumentation
(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 Static and Dynamic characteristics of an instruments in detail. 7M
    b) Classify and explain the static errors? 7M

2. a) Explain the principle and operation of Thermocouple type RF ammeter. 7M
    b) Define the principle of Ohmmeter? Explain the different types of Ohmmeters. 7M

3. a) Explain the principle of operation of Function generator with neat diagram? 7M
    b) With neat diagram explain the operation of Frequency Selective Wave Analyzer. 7M

4. a) Derive the expression for deflection sensitivity of CRT. 7M
    b) With a neat block diagram, Explain the operating principles of Dual trace CRO. 7M

5. a) Explain the working principle of storage oscilloscope with neat sketch. 7M
    b) Explain the principle of time period measurement with a basic block diagram. 7M

6. a) Discuss about the construction, operation and applications of Anderson Bridge with neat diagram. 7M
    b) Explain in detail about EMI & EMC with suitable examples. 7M

7. a) With a neat diagram, explain the construction operation and applications of LVDT. 7M
    b) What do you understand by pH? What is the necessity of using a thermo compensator for pH measurements? 7M

8. a) Describe components of an analog-data-acquisition system. 7M
    b) Explain the RS-232 standards for communication with neat diagram. Also, give the limitations with this standard. 7M

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Code: 1G362

III B.Tech. II Semester Supplementary Examinations Nov/Dec 2018
Microwave Engineering
(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 microwave frequency bands and briefly explain the applications of microwaves?	7M
	b)	What are dominant & degenerate modes? Calculate the frequency of dominant mode in rectangular waveguide.	7M
2.	a)	Derive the expression for rectangular cavity resonator.	7M
	b)	A rectangular cavity resonator has dimensions of a = 5cm, b = 2cm & d = 15cm. Compute i) The resonant frequency of the dominant mode for an air filled cavity. ii) The resonant frequency of the dominant mode for a dielectric filled cavity of r = 2.56.	7M
3.	a)	Explain the properties of magic tee and derive its scattering matrix.	8M
	b)	Explain the characteristics of the directional coupler with the help of neat diagram.	6M
4.	a)	Explain Faraday rotation and characteristics of ferrites	6M
	b)	What is the application of circulator? Derive S – matrix for a 3- port circulator with neat diagram.	8M
5.	a)	What are the limitations of conventional vacuum tubes to operate at microwave frequencies.	7M
	b)	Explain the velocity modulation process of a two cavity klystron amplifier.	7M
6.	a)	Explain the amplification process in helix travelling wave tube.	8M
	b)	Explain the mode operation of magnetron. How it is separate it from other modes?	6M
7.	a)	What are the microwave solid state devices? Explain the operation of Gunn diode.	6M
	b)	What is meant by avalanche transit time devices? Explain the operation, construction and applications of IMPATT	8M
8.	a)	Explain the measurement of power using bolometer technique.	7M
	b)	Explain the measurement of VSWR with neat diagram.	7M

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Code: 1G361

III B.Tech. II Semester Supplementary Examinations Nov/Dec 2018

VLSI Design

(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) With neat sketches explain CMOS fabrication using p-well process?   8M

   b) List out the differences between CMOS and bipolar technologies.   6M

2. a) What are the alternate forms of pull up? Explain each.   8M

   b) Draw the stick and layout diagrams of CMOS inverter.   6M

3. a) What is a stick diagram and explain different symbols used for components in stick diagram.   8M

   b) Why scaling is required? Write the scaling factors for different types of device parameters?   6M

4. a) Write briefly on switch logic and gate logic.   8M

   b) Explain about the concepts of Sheet Resistance.   6M

5. a) Draw the circuit diagram of a DRAM with one transistor and capacitor and also draw its Layout.   8M

   b) Explain about zero/one detector.   6M

6. a) What is CPLD? Draw its basic structure and give its applications.   8M

   b) With a neat sketch explain the architecture of PLA?   6M

7. a) What is shift register? Write VHDL code for shift register.   8M

   b) What are elements of VHDL?   6M

8. a) Explain about i) ATPG ii) IDDQ Testing   8M

   b) Write a short note on constraints and technology libraries.   6M

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