

Code : 1G351

III B.Tech. I Semester Regular Examinations Nov/Dec 2014

Analog Communications
(Electronics & Communication Engineering)

Max. Marks: 70**Time: 03 Hours**Answer *any five* questions

All Questions carry equal marks (14 Marks each)

1. a) Explain basic communication system with block diagram 6M
 b) What is amplitude modulation? Explain the generation of AM wave using square modulator? 8M
2. a) How to generate the DSB-SC-AM waves using Ring modulator? Mention the merits and demerits of the DSBSC wave. 7M
 b) How to demodulate the DSBSC-AM waves by using Costas receiver? 7M
3. a) Explain the generation of SSB waves using phase discrimination method? Mention the merits of SSB over DSBSC 7M
 b) What is VSB? Explain the generation of VSB signals with suitable diagrams? 7M
4. a) Obtain the expressions for narrow band FM and wide band FM? 6M
 b) Explain the principle of operation of phase locked loop? What is constant average power in FM? 8M
5. a) What are the various types and sources of noise? How they affect the communication system? 6M
 b) Derive the signal to noise ratio of DSBSC AM wave? 8M
6. a) Classify the transmitters? Explain high level and low level AM transmitters with neat diagrams 9M
 b) Explain the frequency stability of FM transmitters? 5M
7. a) Explain super-heterodyne receiver with neat block diagram. 6M
 b) Explain the importance of AGC and intermediate frequency in receivers? 8M
8. a) Explain pulse position modulation with neat sketches? 6M
 b) Compare PAM, PWM and PPM systems. 8M

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Antennas and Wave propagation
(Electronics & Communication Engineering)

Max. Marks: 70**Time: 03 Hours**Answer *any five* questions

All Questions carry equal marks (14 Marks each)

1. a) Explain the following terms with related to antennas
 i) Radiation Resistance ii) Effective area iii) Effective length 7M
 b) Explain the concept of fields from oscillating dipole with necessary equations. 7M
2. a) Explain the concept of Retarded potentials. 7M
 b) Compare and contrast the far fields of small loop and short dipole 7M
3. a) Illustrate the principle of Pattern multiplication 7M
 b) Discuss the Yagi-Uda arrays and explain their applications. 7M
4. a) Discuss Travelling wave radiators with necessary diagrams. 7M
 b) Discuss the design considerations for Monofilar Helical antennas 7M
5. a) Discuss the design considerations of Pyramidal Horn antennas 7M
 b) Discuss the directivity and gain measurements of an antenna 7M
6. a) Explain classification of Electromagnetic waves based on modes of propagation. 7M
 b) Explain the ground wave propagation in detail. 7M
7. a) Explain the concept of space wave propagation. 7M
 b) Explain the concept of fading and its limitations. 7M
8. a) Explain the terms MUF and Skip distance and derive a relation between them with respect to Sky wave propagation. 7M
 b) Draw and explain the structural details of Ionosphere. 7M

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Computer System Architecture
(*Electronics & Communication Engineering*)

Max. Marks: 70

Time: 03 Hours

Answer *any five* questions

All Questions carry equal marks (14 Marks each)

1. a) What is System Architecture? Explain the block diagram of Bus architecture with functional Units? 7M
b) Explain the characteristics of Multi Computers & Multiprocessors? Explain Error detection Codes? 7M
2. a) Define Bus? Explain Bus line with Three state – Buffers with neat sketch. 8M
b) Explain
 i) Arithmetic Micro operations
 ii) Logic Micro operations 6M
3. a) Explain characteristics RISC & CISC? 8M
b) Define Interrupt? Explain the types of Interrupts. 6M
4. a) Explain in detail about the Micro programmed control Organization? 8M
b) Define Microprogramming? Explain Microinstruction Format with example? 6M
5. a) Explain Hardware algorithm for Multiply operation with flow chart? 7M
b) Explain the working of a 2-bit by 2-bit array multiplier with neat diagram? 7M
6. a) Explain Memory Hierarchy in a Computer System? 6M
b) Give short note on Cache Memory & Virtual Memory? 8M
7. a) Explain Asynchronous Data Transfer Modes? 7M
b) Discuss about a serial Communication Protocol? 7M
8. a) Discuss the Flynn's Classification of Computers? 8M
b) Define Pipeline? Explain in detail Arithmetic Pipeline? 6M

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Digital IC Applications
(*Electronics & Communication Engineering*)

Max. Marks: 70

Time: 03 Hours

Answer *any five* questions

All Questions carry equal marks (14 Marks each)

1. a) Design CMOS inverter circuit. Explain the transistor switching operation. 6M
b) Design 4-input CMOS OR-AND-INVERT circuit. Explain the transistor switching operation. 8M
2. a) Explain the transistor switching operation of TTL 2 input NAND with neat circuit diagram and truth tables. 8M
b) Compare various TTL families. 6M
3. a) Write the syntax of the following
i) Component declaration ii) with-select statement iii) process statement 6M
b) Design a logic to detect prime number of a 4-bit input and write VHDL code for this design. 8M
4. Compare Structural, dataflow and behavioral design elements with suitable coding examples 14M
5. Write VHDL code for 4-to-16 decoder using 74x138 decoders and explain the operation with neat block diagrams 14M
6. Explain the operation of barrel shifter and write a VHDL code for left and right circular shifts. 14M
7. a) Design a conversion circuit to convert a SRFF to a JKFF. 8M
b) Write VHDL code for SR flip-flop in behavioral model. 6M
8. a) Design a 4x4 binary multiplier using 256X8 ROM 8M
b) Write short notes on different ROMs and RAMs. 6M

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Linear IC Applications
(*Electronics & Communication Engineering*)

Max. Marks: 70**Time: 03 Hours**Answer *any five* questions

All Questions carry equal marks (14 Marks each)

1. a) Define CMRR and List the methods to improve CMRR of a differential amplifier. 6M
b) With neat circuit diagram explain the constant current bias method. 8M
2. a) What is operational amplifier? 2M
b) List some ideal and practical characteristics of an Op Amp. 5M
c) Draw the internal block diagram of an op amp and explain each block. 7M
3. a) With neat sketch explain the working of practical differentiator and list the practical applications of a differentiator. 8M
b) Design a practical differentiator circuit to differentiate a signal of $4 \sin(400t)$. Draw the input and output waveforms 6M
4. a) Explain how the precision rectifier is differ from the conventional rectifier. 6M
b) With neat sketch explain the working of full wave precision rectifier. 8M
5. a) Define filter. Explain how the filters are classified. 7M
b) Design a low pass filter at a cut off frequency 0.9 KHz with a pass band gain of 4. Sketch the response. 7M
6. a) Draw and explain the functional block diagram of IC555 8M
b) List the features of IC555 6M
7. a) What is the difference between A/D and D/A converters 6M
b) Explain the working of weighted resistor DAC and Mention its drawbacks. 8M
8. a) Explain the working of multiplier circuit and list the applications 7M
b) Explain the principle of operation of balanced modulator 7M

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Managerial Economics and Financial Analysis

(Common to CE,ME and ECE)

Max. Marks: 70**Time: 03 Hours**

Answer any five questions

All Questions carry equal marks (14 Marks each)

1. Discuss the salient and significance of managerial economics.
2. Explain the concept of cross elasticity of demand. How would you measure such elasticity?
3. You are given the following information

	<u>Rs</u>
Selling price per unit	20
Variable cost	12
Total fixed cost	96,000

Calculate:

- (i) Break-even units and value.
- (ii) Profit and margin of safety when sales would be Rs.4,00,000.
4. Explain the effect of government intervention in market price behavior.
5. a) What is technical imperative? What is its implication for organization design?
b) Explain the importance and role of forms of business organization?
6. a) State the features of capital budgeting decisions.
b) Define accounting rate of return (ARR).How is it calculated?
7. Prepare the Trial Balance from the following

	Rs		Rs
Outstanding expenses	1,500	Machinery	3,000
Purchase return	3,000	Capital	30,000
Purchases	42,000	Sales	16,000
Office expenses	9,000	Reserve fund	2,000
Creditors	3,000	Cash in hand	6,000
Loan	4,500		

8. Define ratio analysis. State its limitations.
