

[B17EC4101]
IV/IV B.Tech I Semester (R17) Regular Examinations
WIRELESS COMMUNICATIONS & NETWORKS
Department of E.C.E

MODEL QUESTION PAPER

TIME: 3Hrs.

Max. Marks: 70 M

Answer **ONE Question** from **EACH UNIT**.

All questions carry equal marks.

			CO	KL	M
UNIT-I					
1.	a).	Briefly explain the Free space path loss model.	CO1	K2	7
	b).	Compare the common wireless communication systems.	CO1	K2	7
OR					
2.	a).	Explain the functioning of 2G and 3G systems.	CO1	K2	7
	b).	Write a short note on Two -ray fading model?	CO1	K2	7
UNIT-II					
3.	a).	Describe the Ground reflection model.	CO1	K2	8
	b).	What are factors influencing small scale fading? Explain different types of small scale fading?	CO1	K1	6
OR					
4.	a).	Derive the BER performance for wireless channels	CO1	K2	7
	b).	Explain about Doppler spread and Jakes model.	CO1	K2	7
UNIT-III					
5.	a).	Explain the need of Equalization in a communication Receiver and mention the difference between linear and non-linear equalization.	CO3	K4	8
	b).	Write about various diversity methods.	CO3	K2	6
OR					
6.	a).	What is the principle in the operation of Generic Equalizer?	CO3	K2	7
	b).	Explain the salient features of Maximum Likelihood Sequence Estimation (MLSE) Equalization?	CO3	K4	7
UNIT-IV					
7.	a).	Compare standards of IEEE 802.11 a, b, g and n standards? Explain briefly IEEE 802.11 medium access control?	CO4	K2	7
	b).	Write about IEEE802.16 and its enhancements.	CO4	K2	7
OR					
8.	a).	Describe various WLAN topologies?	CO4	K2	7
	b).	What is Hiper LAN?	CO4	K2	7
UNIT-V					
9.	a).	Explain briefly about Wi-Fi and Wi-Max.	CO2	K2	7
	b).	Differentiate Software Defined Radio (SDR) and Cognitive Radio	CO2	K2	7
OR					
10.	a).	Write a short notes on Bluetooth	CO2	K2	7
	b).	Sketch The OFDM block diagram with a neat explanation?	CO2	K2	7

CO-COURSE OUTCOME

KL-KNOWLEDGE LEVEL

M-MARKS

[B17EC4101]

[B17EC4102]
IV/IV B.Tech I Semester (R17) Regular Examinations
DIGITAL IMAGE PROCESSING
Electronics and Communication Engineering

MODEL QUESTION PAPER

TIME: 3Hrs.

Max. Marks: 70 M

Answer ONE Question from EACH UNIT.

All questions carry equal marks.

			CO	KL	M
UNIT-I					
1.	a).	How do you represent a digital image using sampling and quantization?	1	1	7
	b).	Demonstrate image acquisition using a single sensor, sensor strips and sensor Arrays?	1	2	7
OR					
2.	a).	Interpret the basic relationships between pixels in a digital image?	1	2	7
	b).	Outline the fundamental steps used in digital image processing?	1	2	7
UNIT-II					
3.	a).	Explain the concept of Histogram Equalization technique for Image enhancement.	2	2	7
	b).	Examine image smoothing process using frequency domain filters?	2	4	7
OR					
4.	a).	Explain about \intensity transformations and spatial filtering?	2	2	7
	b).	Explain about smoothing and sharpening spatial filters?	2	2	7
UNIT-III					
5.	a).	Discuss briefly about important noise probability functions with neat plots?	3	3	7
	b).	What is periodic noise and how it affects the digital image?	3	1	7
OR					
6.	a).	Explain importance of Minimum Mean Square Error filtering?	3	5	7
	b).	Examine the image restoration using mean and median filters?	3	5	7
UNIT-IV					
7.	a).	Outline the functioning of a general image compression system with a neat sketch?	4	2	7
	b).	Explain block transform coding model using block diagram?	4	2	7
OR					
8.	a).	Categorise and illustrate different types of data redundancies?	4	2	7
	b).	Illustrate Huffman coding process with an example.	4	2	7
UNIT-V					
9.	a).	How do you convert colours from RGB to HSI & HSI to RGB?	5	1	7
	b).	Discuss about basic global thresholding?	5	2	7
OR					

10.	a).	Differentiate edge based segmentation and region based segmentation?	5	2	7
	b).	Discuss about different color models used in image processing?	5	2	7
CO-COURSE OUTCOME		KL-KNOWLEDGE LEVEL	M-MARKS		

[B17EC4102]

[B17 EC4103]
IV/IV B.Tech I Semester (R17) Regular Examinations
FIBER OPTIC COMMUNICATIONS
DEPARTMENT OF ECE

MODEL QUESTION PAPER

TIME: 3Hrs.

Max. Marks: 70 M

Answer **ONE Question** from **EACH UNIT**.

All questions carry equal marks.

			CO	KL	M
UNIT-I					
1.	a).	Discuss in detail about pulse broadening in Graded index fibers.	1	2	7
	b).	A multimode step index fiber with a core diameter of 80 μm and a relative index difference of 1.5% is operating at a wave of 0.85 μm if the core refractive index 1.48, Calculate (i) the normalized frequency for the fiber (ii) the number of guided modes?	2	3	7
OR					
2.	a).	Discuss in detail about advantages of optical fiber communications?	1	2	6
	b).	Calculate Numerical Aperture of a silica optical fiber with a core diameter large enough to be considered by ray theory analysis has a core refractive index of 1.50 and a cladding refractive index of 1.47?	2	3	8
UNIT-II					
3.	a).	Explain in detail about optical fiber fabrication and summarize all the steps involved.	1	2	7
	b).	Explain the splicing procedure and compare any two splicing techniques with a neat sketch.	2	3	7
OR					
4.	a).	Describe the basic structure of the cable and explain all the structural elements.	1	2	7
	b).	List all the connection losses with neat sketches and determine the formulae for losses.	2	3	7
UNIT-III					
5.	a).	Describe the two basic LED structures that are suitable for optical fibers with neat schematics.	3	2	7
	b).	A double hetero-junction InGaAsP LED emitting at a peak wavelength of 1310nm has radiative and nonradiative recombination times 25ns and 90ns, respectively. The drive current is 35 mA. Calculate the internal quantum efficiency and the internal power level.	3	3	7
OR					
6.	a).	List and explain all the injection laser characteristics	3	2	7
	b).	Compare and draw a conclusion for two different semiconductor photodiodes with and without internal gain.	3	4	7
UNIT-IV					
7.	a).	Determine the power coupled from LED to fiber for both step	2	3	7

		index and graded index fibers.			
	b).	Discuss about (i) Equilibrium numerical aperture. (ii) Probability of error.	1	2	7
		OR			
8.	a).	Explain the operation of a fundamental Fiber optic receiver.	1	2	7
	b).	Explain about analog receivers.	1	2	7
		UNIT-V			
9.	a).	Design a single mode fiber link by calculating the length of the fiber with an attenuation of 0.3dB/km and with the required power margin 3dB. The fiber link includes 5 splices at 0.02dB/Splice, 4 connectors at 0.2dB/Connector, transmitter power of -10 dBm and the receiver sensitivity of -25 dBm.(Use graphical method)	4	4	7
	b).	Explain point to point links with relevant diagrams.	4	2	7
		OR			
10.	a).	A Local data link is to be installed having the following characteristics: Maximum bit rate, 16 M bits/sec: installation length, 2000 m; operating wavelength, 850 nm; rise time of the light wave equipment 4ns, and LED spectral width 20 nm. Test whether Multimode 62.5/1125 μm fiber supports the required bit rate?	4	4	7
	b).	Describe the operation of the WDM system with a neat diagram.	4	2	7

CO-COURSE OUTCOME

KL-KNOWLEDGE LEVEL

M-MARKS

[B17 EC4103]

[B17EC4104]
IV/IV B.Tech I Semester (R17) Regular Examinations
EMBEDDED SYSTEMS & INTERNET OF THINGS
Electronics and Communication Engineering
MODEL QUESTION PAPER

TIME: 3Hrs.

Max. Marks: 70 M

Answer ONE Question from EACH UNIT.
All questions carry equal marks.

			CO	KL	M
		UNIT-I			
1.	a).	Explain the typical Embedded system architecture with relevant diagram?	CO1	K2	7
	b).	Illustrate an application-specific Embedded system with suitable examples?	CO1	K2	7
		OR			
2.	a).	Explain the characteristics of embedded systems	CO1	K2	7
	b).	Discuss about Real time clock with respect to an Embedded Hardware?	CO1	K2	7
		UNIT-II			
3.	a).	Explain about serial communication devices and parallel device ports?	CO1	K2	8
	b).	Discuss the significance of Watchdog timer in an Embedded System.	CO2	K2	6
		OR			
4.	a).	What is a Device Driver? Explain different types of device drivers and use of them	CO2	K2	7
	b).	Explain about memory organization in Embedded system	CO2	K2	7
		UNIT-III			
5.	a).	Draw and explain about Physical Design & Logical Design of IoT	CO1	K2	8
	b).	Define IoT and mention different Characteristics of IoT	CO1	K2	6
		OR			
6.	a).	Explain in details about IoT protocols	CO1	K2	8

	b).	Differences and Similarities between M2M and IoT.	CO1	K2	6
		UNIT-IV			
7.	a).	Name and explain in detail about any two communication concepts	CO3	K2	8
	b).	Explain about the following a) Ultrasonic Sensor b) IR Sensor c) Temperature & Humidity	CO3	K2	6
		OR			
8.		Explain the Basic building blocks of an IoT Device & relate it with exemplary device.	CO3	K3	14
		UNIT-V			
9.	a).	Explain in detail about Web Application Messaging Protocol (WAMP).	CO4	K2	7
	b).	Demonstrate the role of Cloud based communication & Data Analytics In IoT	CO4	K3	7
		OR			
10.		Analyze IoT Design Methodology with a use case.	CO4	K4	14

CO-COURSE OUTCOME

KL-KNOWLEDGE LEVEL

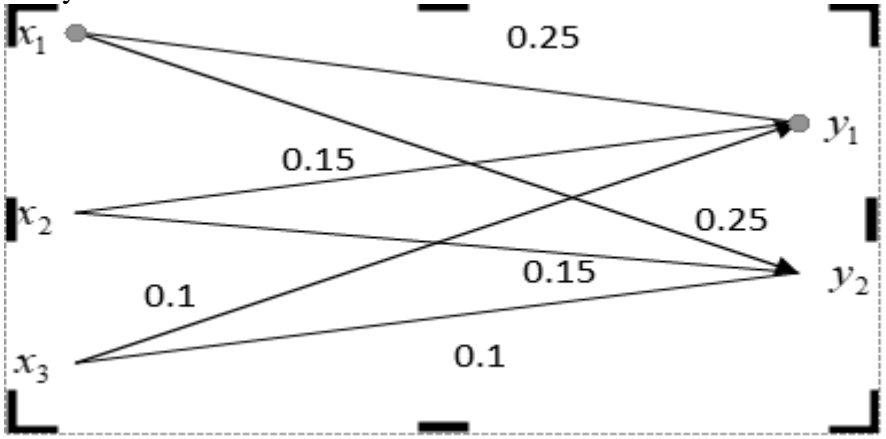
M-MARKS

B17EC4105
IV B. Tech I Semester (R17) Regular Examinations
INFORMATION THEORY AND CODING
ELECTRONICS AND COMMUNICATION ENGINEERING
MODEL QUESTION PAPER

TIME: 3Hrs.

Max. Marks: 70 M

Answer **ONE Question** from **EACH UNIT**.
 All questions carry equal marks.

			CO	KL	M
UNIT-I					
1.	a).	Discuss in detail about Shannon's source coding theorem.	CO1	K2	7
	b).	An analog signal is band limited to 800 Hz, sampled at the Nyquist rate, and the samples are quantized into four levels. The quantization levels are assumed independent and occur with probabilities (1/8, 1/8, 3/8, and 3/8). Find the entropy $H(X)$ and information rate R of the source	CO1	K3	7
OR					
2.	a).	Discuss the steps involved in Shanon-Fano algorithm.	CO2	K2	7
	b).	A source emits messages with probabilities (1/2, 1/4, 1/8, 1/16, 1/32, and 1/32). Calculate (i) entropy of the source, (ii) Apply Shannon-Fano algorithm to devise a binary code for this source and find its coding efficiency and redundancy.	CO2	K3	7
UNIT-II					
3.	a).	Find the mutual entropy $H(X;Y)$ for the channel shown below. Joint probabilities $P(XY)$ are given. Assume source symbols are equally likely. 	CO3	K4	7
	b).	Derive the expressions for mutual entropy, mutual information and joint probabilities	CO3	K3	7
OR					
4.	a).	State & explain the Shannon's noisy channel coding theorem. Find the channel capacity of a binary symmetric channel.	CO3	K3	7
	b).	Derive the expression for the channel capacity of AWGN channel.	CO3	K3	7
UNIT-III					

5.	a).	Explain the generation of a linear systematic (n, k) block code using generator matrix. Define minimum Hamming distance d_{\min} of a code. What is the relation between d_{\min} and the error correcting capacity of a code	CO4	K2	7
	b).	Find the generator polynomial & parity check polynomial for a linear $(7,4)$ systematic cyclic code. Use them to code and decode a message 1010.	CO4	K3	7
		OR			
6.	a).	Demonstrate that $(7,4)$ Hamming code can correct a single error & detect a double error by syndrome decoding	CO4	K3	7
	b).	Write about BCH codes & CRC codes.	CO4	K2	7
		UNIT-IV			
7.	a).	Draw the structure of a rate $1/2$ Convolutional coder for $g_1=[1\ 0\ 1]$ and $g_2=[011]$. Explain the encoding process. Construct the state diagram, trellis diagram & code tree. Find the coder output for input data = $[1\ 0\ 10\ 1]$.	CO5	K3	7
	b).	Write in detail about structural properties of convolution codes.	CO5	K2	7
		OR			
8.	a).	Distinguish between exhaustive search method and Viterbi decoding of Convolutional codes. Explain how the decoding complexity increases with the constraint length?	CO5	K4	7
	b).	Write in detail about coding for compound error channels	CO5	K2	7
		UNIT-V			
9.	a).	What is a MIMO system? Explain Space-Time Coded MIMO system using 2-transmit Alamouti STBC code.	CO5	K2	7
	b).	Write in detail about concatenated codes	CO5	K2	7
		OR			
10.	a).	Describe Turbo codes structure, encoding & advantages.	CO5	K2	7
	b).	Write short notes on: LDPC codes, Tanner graphs & applications.	CO5	K2	7

CO-COURSE OUTCOME

KL-KNOWLEDGE LEVEL

M-MARKS

[B17EC4105]

[B17EC4106]
IV/IV B.Tech I Semester (R17) Regular Examinations
SATELLITE COMMUNICATION AND GPS
Electronics and Communication Engineering

MODEL QUESTION PAPER

TIME: 3Hrs.

Max. Marks: 70 M

Answer **ONE Question** from **EACH UNIT**.

All questions carry equal marks.

			CO	KL	M
UNIT-I					
1.	a).	Express the three Kepler's laws of planetary motion.	CO1	K1	7
	b).	Explain about various orbital parameters used in orbital analysis of a satellite.	CO1	K1	7
OR					
2.	a).	Derive the suitable equations for look angles and the range for geostationary satellites.	CO2	K2	7
	b).	Give the condition for satellite visibility criterion.	CO2	K2	7
UNIT-II					
3.	a).	Examine how the attitude and orbit control system (AOCS) is achieved through spin stabilization systems? Give necessary diagrams.	CO2	K2	7
	b).	Explain the reason for inter-modulation noise originating in a satellite link.	CO2	K2	7
OR					
4.	a).	Explain TT and C system in detail.	CO2	K2	7
	b).	Express equation for the downlink C/N ratio for the satellite.	CO2	K2	7
UNIT-III					
5.	a).	Calculate the carrier-to-noise ratio for the combined uplink and downlink communication.	CO3	K3	7
	b).	State how intermodulation noise originates in a satellite link and describe how it is reduced?	CO3	K3	7
OR					
6.	a).	Explain the effect of rain in both uplink and downlink communication.	CO3	K3	7
	b).	Summarize the sources of noise in satellite communication. What is the importance of noise temperature in link design?	CO3	K3	7
UNIT-IV					
7.	a).	Illustrate the features of various multiple access schemes deployed for satellite access and compare it.	CO4	K2	7
	b).	Determine the limitations of CDMA.	CO4	K2	7
OR					
8.	a).	Explain direct sequence spread spectrum communication in detail.	CO4	K2	7
	b).	Write a short note about the SPADE system.	CO4	K2	7
UNIT-V					
9.	a).	State and explain the working principle behind GPS?	CO1	K1	7
	b).	Explain how receiver position in 3D is determined in GPS with neat diagrams.	CO1	K1	7
OR					
10.	a).	Explain the function of different segments in the operation of GPS	CO1	K1	7

		in detail with necessary diagrams.			
	b).	Compare GPS, GLONASS and GALILEO in terms of orbit configuration and services.	CO1	K1	7

CO-COURSE OUTCOME

KL-KNOWLEDGE LEVEL

M-MARKS

[B17EC4106]

[B17EC4107]
IV/IV B.Tech I Semester (R17) Regular Examinations
ANALOG IC DESIGN
Electronics and Communication Engineering

MODEL QUESTION PAPER

TIME: 3Hrs.

Max. Marks: 70 M

Answer **ONE Question** from **EACH UNIT**.

All questions carry equal marks.

			CO	KL	M
UNIT-I					
1.	a).	Draw the small-signal model for the MOS transistor. Briefly explain each component in that?	1	2	7M
	b).	Discuss about the Passive Components of the MOS transistor.	1	2	7M
OR					
2.	a).	Discuss in detail about the Large-signal model for the MOS Transistor.	1	2	7M
	b).	Discuss in detail about the computer simulation models	1	2	7M
UNIT-II					
3.	a).	Explain about the Bipolar simple current mirror with degeneration helper with necessary equations.	2	2	7M
	b).	Write short notes on MOS Switch, MOS Diode, MOS Active Resistor.	1	2	7M
OR					
4.	a).	Write short notes on Current Sinks and Sources.	1	2	7M
	b).	Explain the difference between cascode current mirror and Wilson current mirror.	2	2	7M
UNIT-III					
5.	a).	Briefly explain the differential amplifiers. With necessary equation give the large signal analysis of CMOS differential amplifiers	3	3	7M
	b).	Write short notes on current amplifiers	1	3	7M
OR					
6.	a).	Explain about high gain amplifier architectures	1	2	7M
	b).	Derive the expression for power-supply rejection ratio of Two-stage op-amps	3	3	7M
UNIT-IV					
7.	a).	Explain about the design of CMOS op-amps	3	2	7M
	b).	Write short notes on Cascode amplifiers	3	2	7M
OR					
8.	a).	Explain the compensation of Op-amps.	3	2	7M
	b).	With neat sketch explain the following a) Characteristics of Op-Amp b) Classification of Op-Amp	3	2	7M
UNIT-V					
9.	a).	Explain about the different types of Open loop comparator	4	2	7M
	b).	Write short notes on Discrete-Time Comparators.	4	2	7M
OR					
10.	a).	Write short notes on Switched capacitor comparators	4	2	7M
	b).	Write Short notes on Regenerative comparators	4	2	7M

CO-COURSE OUTCOME

KL-KNOWLEDGE LEVEL

M-MARKS

[B17EC4107]

[B17EC4201]
IV/IV B.Tech II Semester (R17) Regular Examinations
CELLULAR AND MOBILE COMMUNICATIONS
Electronics and Communication Engineering

MODEL QUESTION PAPER

TIME: 3Hrs.

Max. Marks: 70 M

Answer **ONE Question** from **EACH UNIT**.

All questions carry equal marks.

			CO	KL	M
UNIT-I					
1.	a).	Why does the basic geographic unit of the cellular system have a hexagonal shape? Explain.	CO1	K2	7M
	b).	Describe the principle of operation of cellular mobile system and Explain Cellular concept with neat diagram.	CO1	K2	7M
OR					
2.	a).	Briefly discuss the different types of wireless communication systems.	CO1	K2	7M
	b).	Write about the system design fundamentals of wireless communication Systems	CO1	K1	7M
UNIT-II					
3.	a).	What is meant by hand off? Describe the classification of hand off Process	CO1	K2	7M
	b).	If 20 MHz of total spectrum is allocated for a duplex wireless cellular system and each simplex channel has 25 kHz RF bandwidth. Find i. The number of duplex channels ii. The total number of channels per cell size if N=4 reuse is used.	CO1	K3	7M
OR					
4.	a).	Explain about the trunk and grade service in wireless communications.	CO1	K2	7M
	b).	Write in detail about the different Methods for improving coverage and Capacity in cellular system	CO1	K2	7M
UNIT-III					
5.	a).	Write a short note on TDMA, FDMA, SDMA, and CSMA.	CO2	K1	7M
	b).	Write in detail about packet radio in wireless communications.	CO2	K2	7M
OR					
6.	a).	How the spread spectrum increases the capacity of a wireless channel? Explain.	CO2	K2	7M
	b).	Write about the different multiple access techniques.	CO2	K1	7M
UNIT-IV					
7.	a).	What are the different types of GSM channels? Explain.	CO3	K1	7M
	b).	Explain the frame structure of GSM, in detail.	CO3	K2	7M
OR					
8.	a).	Explain about forward and reverse CDMA channels.	CO3	K2	7M
	b).	Write about AMPS and IS-94.	CO3	K1	7M
UNIT-V					
9.	a).	What is large scale path loss? Explain	CO4	K2	7M
	b).	What is fading? How its effect the wireless mobile communication explain.	CO4	K1	7M

		OR			
10.	a).	If transmitter power is 1W and carrier frequency is 2.4GHz, and the receiver is at a distance of 1Km from the transmitter. Assume that the transmitter and receiver antenna gains are 1.6. 1. Find the received power in dBm in the free space of a signal. 2. What is the path loss in dB?	CO4	K3	7M
	b).	Discuss about different types of indoor and outdoor propagation models.	CO4	K2	7M

CO-COURSE OUTCOME

KL-KNOWLEDGE LEVEL

M-MARKS

[B17EC4201]

[B17EC4202]
 IV/IV B.Tech II Semester (R17) Regular Examinations
AI & MACHINE LEARNING
 Electronics and Communication Engineering

MODEL QUESTION PAPER

TIME: 3Hrs.

Max. Marks: 70 M

Answer ONE Question from EACH UNIT.

All questions carry equal marks.

			CO	KL	M
UNIT-I					
1.	a).	Briefly explain Artificial intelligence?	1	2	7
	b).	Recall the significance and history of artificial intelligence.	1	1	7
OR					
2.	a).	Give an outline about artificial intelligence agents	1	2	7
	b).	Demonstrate about knowledge based systems	1	2	7
UNIT-II					
3.	a).	Inspect the machine learning process and give some examples of ML?	2	2	7
	b).	Write short note on i) hypothesis space ii) Bias & variance	2	2	7
OR					
4.	a).	Classify different types of learning methods and explain them?	2	2	7
	b).	Illustrate the meaning of underfitting and overfitting?	2	2	7
UNIT-III					
5.	a).	Elaborate the supervised learning process and explain about classification?	3	3	7
	b).	Assess the importance of confusion matrix in machine learning process.	3	4	7
OR					
6.	a).	Elaborate the decision trees classification mechanism?	3	3	7
	b).	Illustrate the simple linear regression process?	3	2	7
UNIT-IV					
7.	a).	Inspect the unsupervised learning and its applications?	4	3	7
	b).	What are the different types of clustering techniques?	4	2	7
OR					
8.	a).	Outline the clustering process as a machine learning task?	4	2	7
	b).	Compare supervised and unsupervised learning?	4	4	7
UNIT-V					
9.	a).	Discuss about neural networks and their significance in machine learning?	5	2	7
	b).	Inspect the learning process in ANN?	5	3	7
OR					
10.	a).	Summarize different types of activation functions used in machine learning?	5	2	7
	b).	Distinguish single layer and multi-layer feed forward neural networks?	5	4	7

CO-COURSE OUTCOME

KL-KNOWLEDGE LEVEL

M-MARKS

[B17EC4202]

[B17EC4203]
IV/IV B.Tech II Semester (R17) Regular Examinations
[NETWORK SECURITY & CRYPTOGRAPHY]
Electronics and Communication Engineering
MODEL QUESTION PAPER

TIME: 3Hrs.

Max. Marks: 70 M

Answer **ONE Question** from **EACH UNIT**.
 All questions carry equal marks.

			CO	KL	M
UNIT-I					
1.	a).	Explain about Principles of security	CO1	K2	7
	b).	Explain substitution techniques	CO1	K2	7
OR					
2.	a).	Explain Play Fair Cipher with Example	CO1	K2	7
	b).	Explain RC-5 Algorithm	CO1	K2	7
UNIT-II					
3.	a).	P=17, Q=37, E=7, M=2.What is Cipher Text using RSA?	CO2	K4	7
	b).	Differences between Symmetric and Asymmetric Cryptography	CO2	K4	7
OR					
4.	a).	Explain MD-5 Algorithm	CO2	K2	7
	b).	Explain about Digital Signature algorithm	CO2	K2	7
UNIT-III					
5.	a).	Describe Authentication Token Mechanism	CO3	K2	7
	b).	How to Sign and Verify Digital Certificate	CO3	K4	7
OR					
6.	a).	Explain Digital certificate	CO3	K2	7
	b).	Explain PKIX Model.	CO3	K2	7
UNIT-IV					
7.	a).	Explain PGP with neat diagrams	CO4	K2	7
	b).	Explain Security in GSM	CO4	K2	7
OR					
8.	a).	Explain Secure Socket Layer	CO4	K2	7
	b).	Explain SET Protocol	CO4	K2	7
UNIT-V					
9.	a).	Explain IP Security	CO5	K2	7
	b).	Explain Countermeasures to worms	CO5	K2	7
OR					
10.		Explain Firewalls with neat diagrams	CO5	K2	14

CO-COURSE OUTCOME

KL-KNOWLEDGE LEVEL

M-MARKS

[B17EC4203]

[B17EC4204]
IV/IV B.Tech II Semester (R17) Regular Examinations
DIGITAL SIGNAL PROCESSORS AND ARCHITECTURES
Electronics and Communication Engineering
MODEL QUESTION PAPER

TIME: 3Hrs.

Max. Marks: 70

Answer **ONE Question** from **EACH UNIT**.

All questions carry equal marks.

			CO	KL	M
		UNIT-I			
1.	a).	Explain the basic Digital signal processing system with the help of block diagram	1	K1	7M
	b).	Explain in detail about sources of errors in DSP implementations.	1	K2	7M
		OR			
2.	a).	Discuss about the DFT and FFT calculations in Digital signal processors.	1	K1	7M
	b).	Write about fixed point and floating point formats.	1	K2	7M
		UNIT-II			
3.	a).	Discuss in brief about the data addressing capabilities of programmable DSP Devices with examples.	2	K1	7M
	b).	Explain the operation of address generation unit in a DSP processor with neat block diagram.	2	K2	7M
		OR			
4.	a).	What are the features for external interfacing in a DSP processor.	2	K2	7M
	b).	Write about the programmability and program execution sequence of a DSP	2	K3	7M
		UNIT-III			
5.	a).	What is the need an interrupt in a processor? Write about Interrupts of TMS320C54XX Processor.	3	K4	7M
	b).	Explain the concept of Pipelining for speeding up the execution of an Instruction.	3	K5	7M

		OR			
6.	a).	Write about different on chip peripherals of TMS320C54XX processor.	3	K1	7M
	b).	Explain about the memory space organization of TMS320C54XX processor	3	K5	7M
		UNIT-IV			
7.	a).	Explain the micro signal architecture in detail.	3	K2	7M
	b).	Discuss in brief about the basic peripherals in analog devices family of DSP devices.	3	K2	7M
		OR			
8.	a).	Explain the architecture of Black fin processor, with neat circuit diagram.	3	K1	7M
	b).	Explain the architecture of ADSP 2100.	3	K1	7M
		UNIT-V			
9.	a).	Draw and explain the block diagram of memory interface for the TMS320C5416 processor.	4	K1	7M
	b).	How does DMA help in increasing the processing speed of a DSP processor?	4	K4	7M
		OR			
10.	a).	How can an external bus be interfaced with a TMS320C54XX processor? Explain.	4	K2	7M
	b).	Explain the Parallel I/O and Programmable I/O.	4	K1	7M

CO-COURSE OUTCOME

KL-KNOWLEDGE LEVEL

M-MARKS

[B17EC4204]