

**MAHATMA GANDHI INSTITUTE OF TECHNOLOGY (Autonomous)****M.Tech. II Semester End Examinations**Model Question Paper**Course Title: Network Security & Cryptography****Course Code: EC201PC**

Time : 3 hours

Max. Marks : 70

*Answer any FIVE Questions
(Each question carries 14 marks)*

Q. No.	Stem of the question	M	L	CO	PO
Unit-I					
1. a)	What are the types of security attacks? Explain with neat sketch.	7	2	1	2
b)	Explain the model for network security.	7	1	1	2
Unit-II					
2. a)	Explain about Fermat's and Euler's theorem.	7	2	4	1
b)	Write about Euclidean algorithm with example.	7	2	4	1
Unit-III					
3. a)	Explain AES algorithm and evolution criteria.	7	4	2	4
b)	With a neat diagram explain how encryption and decryption are done using Blowfish algorithm.	7	4	2	4
Unit-IV					
4. a)	Explain how key exchange is done using Diffie-Hellman key exchange.	7	3	2	5
b)	What is Elliptic curve cryptosystem? Explain with example.	7	3	4	2
Unit-V					
5. a)	Explain secure socket layer protocol stack architecture, operation and write about handshake protocol.	7	4	4	5
b)	Explain firewalls. What are the capabilities & limitations of firewall.	7	2	5	2
a. Unit-I b. Unit-II					
6. a)	Compare monoalphabetic and polyalphabetic ciphers.	7	2	1	3
b)	Explain about modular arithmetic with example.	7	2	4	1
a. Unit-III b. Unit-IV					
7. a)	What are the different types of block cipher modes of operations.	7	2	1	2
b)	Discuss about secure hash algorithm	7	3	3	3
a. Unit-V b. Unit-I/II/III/IV/V					
8. a)	What is revocation of certificate? Explain authentication procedure of X.509 certificate	7	4	5	4
b)	What are the requirements for authentication	7	2	5	2

M: Marks; L: Bloom's Taxonomy Level; CO: Course Outcome; PO: Programme Outcome

**MAHATMA GANDHI INSTITUTE OF TECHNOLOGY (Autonomous)****M.Tech. II Semester End Examinations**Model Question Paper**Course Title: Advanced Communications and Networks****Course Code: EC202PC**

Time : 3 hours

Max. Marks : 70

Answer any FIVE Questions*(Each question carries 14 marks)*

Q. No.	Stem of the question	M	L	CO	PO
Unit-I					
1. a)	Give an example of maximum length shift register for generating the PN sequences and explain	7	1	1	1
b)	Explain the principle of DS-CDMA model	7	2	1	1
Unit-II					
2. a)	Draw the block diagram of OFDM transmitter and receiver and explain.	7	2	2	1
b)	Consider an OFDM system with 52 subcarriers out of which 4 subcarriers are used as pilot subcarriers and the remaining as data subcarriers. OFDM symbol duration including guard interval for ISI mitigation is 4 micro second. If the system uses three-fourth of the FEC code rate and 64-QAM carrier modulation scheme. Find the number of data bits transmitted per OFDM symbol and approximate transmission data rate ?	7	3	2	1
Unit-III					
3. a)	Discuss about the different configurations of MIMO with neat diagram.	7	1	2	1
b)	Write Short notes on Space-Time Coding.	7	1	2	1
Unit-IV					
4. a)	Discuss about wireless LAN security.	7	1	3	1
b)	Compare various standards of IEEE 802.11x	7	3	3	1
Unit-V					
5. a)	Explain the physical layer details of IEEE 802.15.1.	7	1	4	1
b)	Explain IEEE 802.16 wireless MANs, with an example	7	1	4	1
a.Unit-I b. Unit-II					
6. a)	Explain Walsh sequences. Also give their properties.	7	1	1	1
b)	Compare FDM and OFDM techniques.	7	1	2	1
a.Unit-III b. Unit-IV					
7. a)	Explain the concept of MIMO channel modeling.	7	2	2	1
b)	Explain 802.11b higher rate standard in detail.	7	1	3	1
a.Unit-V b. Unit-I/II/III/IV/V					
8. a)	Discuss the connection management followed in Bluetooth technology.	7	1	4	1
b)	Draw a neat block diagram and explain Rake receiver.	7	1	1	1

M: Marks; L: Bloom's Taxonomy Level; CO: Course Outcome; PO: Programme Outcome

**MAHATMA GANDHI INSTITUTE OF TECHNOLOGY (Autonomous)****M.Tech. II Semester End Examinations**Model Question Paper**Course Title: Embedded Real Time Operating Systems****Course Code: EC212PE**Time : **3 hours**Max. Marks : **70****Answer any FIVE Questions***(Each question carries 14 marks)*

Q. No.	Stem of the question	M	L	CO	PO																				
Unit-I																									
1. a)	Give syntax of following commands: (i) ls (ii) grep (iii) pid (iv) kill	7	1	1	1																				
b)	Categorize the types of system calls and its use by user to kernel	7	2	2	9																				
Unit-II																									
2. a)	Construct process state chart for coordination and also showcase the interrupt or resource unavailability during transition	7	3	3	3																				
b)	Explain how message queue solves the process synchronization	7	4	4	7																				
Unit-III																									
3. a)	Design the pipes for multi-source communication and also provide the logic for data packet or stream separation	7	3	5	5																				
b)	Demonstrate the role of event register in process management	7	2	3	5																				
Unit-IV																									
4. a)	Describe spurious interrupts and how a spurious interrupt gets invoked?	7	6	6	4																				
b)	Analyze and compare FCFS, SJF, RR algorithm for following information: (Assume the burst duration is in mS)	7	5	3	1																				
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Process</th> <th>Arrival time</th> <th>Burst time</th> <th>priority</th> </tr> </thead> <tbody> <tr> <td>P1</td> <td>0</td> <td>8</td> <td>3</td> </tr> <tr> <td>P2</td> <td>1</td> <td>4</td> <td>1</td> </tr> <tr> <td>P3</td> <td>2</td> <td>9</td> <td>4</td> </tr> <tr> <td>P4</td> <td>3</td> <td>5</td> <td>5</td> </tr> </tbody> </table>	Process	Arrival time	Burst time	priority	P1	0	8	3	P2	1	4	1	P3	2	9	4	P4	3	5	5				
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P1	0	8	3																						
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P4	3	5	5																						
Unit-V																									
5. a)	Prescribe RT-Linux and its modules involved for ARM processor	7	4	6	10																				
b)	Quote the features and organization of VxWorks 5.x operating system	7	3	1	5																				
a. Unit-I b. Unit-II																									
6. a)	Explain the file related system call and the challenges associated with working of files	7	1	2	5																				
b)	How counter semaphore avoids deadlock scenario, Give syntax for it	7	1	5	3																				
a. Unit-III b. Unit-IV																									
7. a)	Draw device status table for device management services	7	4	2	6																				
b)	Outline Interpret exception handing through diagram in system by an operating system	7	3	7	5																				
a. Unit-V b. Unit-I/II/III/IV/V																									
8. a)	Why preemptive scheduling is advantage, how μ COS OS helps in providing the facility	7	2	2	4																				
b)	Interpret POSIX threads in RTOS	7	5	4	4																				

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MAHATMA GANDHI INSTITUTE OF TECHNOLOGY (Autonomous)

M.Tech. II Semester End Examinations

Model Question Paper

Course Title: Ad-hoc and Wireless Sensor Networks

Course Code: EC216PE

Time : 3 hours

Max. Marks : 70

Answer any FIVE Questions
(Each question carries 14 marks)

Q. No.	Stem of the question	M	L	CO	PO
Unit-I					
1. a)	Give and Explain the standards of IEEE802.11 in details?	7	1	1	1
b)	Explain Bluetooth Technology?	7	2	1	1
Unit-II					
2. a)	Mention the design goals of a MAC protocol for AdHoc Wireless Network?	7	2	2	2
b)	What are the different contention based protocols, write about CSMA protocol.	7	2	2	1
Unit-III					
3. a)	Describe about various types of hybrid routing protocols.	7	3	3	1
b)	Illustrate the basics of table driven Routing Protocols.	7	1	3	2
Unit-IV					
4. a)	List out the design goals of a transport Layer protocol for AdHoc wireless Networks.	7	2	4	2
b)	Explain about Ad Hoc Transport control Protocol Network layer.	7	2	4	1
Unit-V					
5. a)	Explain network architecture of Wireless Sensor Network	7	2	5	1
b)	Give the differences between Data Dissemination and Data Gathering?	7	1	5	2
a. Unit-I b. Unit-II					
6. a)	Give the Differences between HIPERLAN 1 and HIPERLAN 2?	7	1	1	1
b)	Explain scheduling based MAC protocols.	7	2	2	1
a. Unit-III b. Unit-IV					
7. a)	Discuss about hierarchical Routing protocols and explain it's types.	7	1	3	2
b)	Discuss in-detail about Transport layer protocols with neat sketch.	7	2	4	2
a. Unit-V b. Unit-I/II/III/IV/V					
8. a)	Explain about network security attacks.	7	2	5	1
b)	Give detailed explanation of Issues in Adhoc Wireless Networks?	7	1	1	1

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