	Computer Networks and Security
SOURCE: 01	Computer Networks and Security (GATE EXAM)
01	Computer Networks and Security Full Syllabus
02	Introduction to Computer Network OSI Model in Easiest Way
03	LAN, MAN, WAN, PAN, CAN Computer
04	TCP/IP Protocol Suite Internet Protocol Suite OSI vs TCP/IP
05	Physical Layer in Computer Network Function of Physical Layer
06	Topologies in Computer Network Part-1 Mesh, Star, Hub, Bus, Hybrid
07	Topologies in Computer Network Part-2 Mesh, Star, Hub, Bus, Hybrid
08	Manchester Encoding and Differential Manchester Encoding
09	Various Devices in Computer Networks Hardware and Software Devices
10	Types of Cables in Computer Networks Coaxial, Twisted Pair, Fiber Optic Cable
11	Repeaters in Computer Networks Physical Layer Devices
12	Hub in Computer Networks Physical Layer Devices
13	Bridges in Computer Networks Physical and data Link Layer Devices
14	Switch, Hub and Bridge Explained – What's the Difference
15	Routers in Computer Networks Physical, Data Link and Network Layer Device
16	Collision Domain Vs. Broadcast Domain Repeater, Hub, Bridge, Switch, Router
17	What is Circuit Switching in Computer Networks
18	Packet Switching in Computer Networks Detagram Switching us Virtual Gravit Switching in Packet Switching
19	Datagram Switching vs Virtual Circuit Switching in Packet Switching
20 21	What is Message Switching in Computer Networks Unicast, Broadcast and Multipast in Computer Networks
21	Unicast, Broadcast and Multicast in Computer Networks
22	Data Link Layer in Computer Networks and Its Responsibilities Stop and Wait ARQ Protocol Data Link Layer
23	Go-Back-N ARQ (Automatic Repeat Request Data Link Layer
25	Selective Repeat ARQ (Automatic Repeat Request) Data Link Layer
26	Various Flow Control Protocols Stop and Wait, GoBackN and Selective Repeat
27	Framing in Data Link Layer Bit Stuffing vs Byte Stuffing
28	Introduction to Error Detection and Correction
29	Single Bit Parity Along with Hamming Distance Concept
30	Cycle Redundancy Check (CRC) for Error Detection and Correction
31	Hamming Code for Error Detection and Correction both with Easiest Example
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33	What is Pure Aloha MAC Layer Protocol
34	Pure Aloha vs Slotted Aloha
35	Carrier Sense Multiple Access in Computer Network
36	Carrier Sense Multiple Access / Collision Detection CSMA/CD
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43	Class B in IP Addressing with Example Class-full Addressing Network Layer
44	Class C in IP Addressing with Example Class-full Addressing Network Layer
45	Class D and Class E in IP Addressing with Example Class-full Addressing Network Layer
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47	Disadvantages of Class-full Addressing IP Addressing
48	What is Class-less Addressing (CIDR) CIDR vs Class-full Addressing
49	Sub-netting in Class-full Addressing with Examples
50	Variable Length Subnet Masking (VLSM) with Examples
51	Sub-netting in CIDR Addressing Class-less Inter-domain Routing with Example
52	Question Numerical CIDR Class-less Addressing
53	VLSM in Class-less Addressing (CIDR) Variable Length Subnet Masking
54	IPv4 Header Format Explained Fragmentation of IPv4 Datagrams Identification Flags and Fragment Offset Nationalis
55	Pragmentation of IPv4 Datagram Identification, Flags and Fragment Offset Networks
56	Options and Padding in IPv4 Header IPv6 Header Format IPv6 vs IPv6 in Computer Network
57	IPv6 Header Format IPv4 vs IPv6 in Computer Network What is Routing Protocols Various Types of Routing Protocols
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29	<u>Distance Vector Routing Algorithm</u>

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63	NAT Explained – Network Address Translation with Example
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71	TCP Congestion Control in Computer Networks
72	UDP (User Datagram Protocol) Header in Computer Network
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75	Session Layer of OSI Model Session Layer Functions
76	Presentation Layer in Computer Network OSI Model
77	Application Layer of OSI Model Application Layer Protocols and Port No
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80	HTTP, FTP, SMTP, FOP Application Layer Protocols
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82	SMTP vs POP3 vs IMAP with Real Life Example Application Layer Protocols
83	Cryptography in Computer Network Cryptography in Information Security
84	Symmetric Key Cryptography in Network Security with Example
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86	Asymmetric Key Cryptography with Example Network Security
87	RSA Algorithm in Network Security with Examples
88	What is Firewalls and How it Works Packet Filtering Firewall Explained
89	What is Application (Proxy) Firewall Network Security Part-2
90	Questions on Computer Networks
91	All Networking Protocols and Devices Summary From Physical and Application Layer
92	Top Linux Network Commands
93	Socket Programming in Computer Networks
94	Need of IPv6 Protocol Why IPv6 is Required
95	What is IPSec Protocol IPsec Introduction
96	<u>Transport Mode vs Tunnel Mode in IPSec</u>
97	Basic of Communication
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99	Fast Ethernet vs Gigabit Ethernet with Examples
100	What is Ping and Loopback in Network
101	HTPP vs HTTPs with Examples
102	TCP/IP Protocol Suite with Real Live Examples Why TCP/IP Used Fundamentals
103	IPSec vs SSH vs. SSL/TLS Network Security Protocols
104	What is VPN How VPN Works Virtual Private Network (VPN) with Real Life Example

Data Communication		
SOURCE: 02	Data Communication	
01	What is Data Communication and Components	
02	Data Transmission Models Simplex, Half Duplex, Full Duplex	
03	Type of Connection Point to Point and Multi Point, Physical Tropology Part-1 MESH and STAR	
04	Physical Topologies Part-2 BUS, RING, HYBRID	
05	OSI Model Layered Architecture, How All Layers Work Together	
06	Categories of Networks PAN, LAN, MAN, WAN	
07	Functions of OSI Model – Part A Physical Layer, Data Link Layer	
08	Functions of OSI Model – Part B Network Layer, Transport Layer	
09	Functions of OSI Model – Part C Session Layer, Presentation Layer, Application Layer	
10	TCP/IP Model	
11	<u>Protocols in Each Layer</u>	
12	How Physical, Logical and Port Addressing in Done in TCP/IP	
13	<u>Transmission Impairment Attenuation, Distortion, Noise</u>	
14	Data Rate Limits Nyquist Bit Rate, Shannon Capacity	
15	<u>Line Coding Schemes Part-1 Unipolar NRZ, Polar NRZ –L, Polar NRZ –L</u>	
16	<u>Line Coding Schemes Part-2 RZ, Manchester Differential Manchester</u>	
17	Line Coding Schemes Part-3 AMI, Pseudoternary	
18	Line Coding Schemes Part-4 Multilevel 2B1Q	
19	Line Coding Schemes Part-5 MLT-3	
20	Scrambling B8ZS	
21	Synchronous Time Division Multiplexing	
22	<u>Difference Between Synchronous and Statistical TDM</u>	
23	SCRAMBLING HDB3	
24	Multiplexing Frequency Division Multiplexing, Analog Hierarchy, Wavelength Division Multiplexing	
25	Cyclic Redundancy Check (CRC) Encoder and Decoder, CRC Example	
26	Flow and Error Control, Taxonomy of Protocols Used	
27	Simplest Protocol for Noiseless Channels Design, Algorithm	
28	Stop and Wait Protocol Design, Algorithm	
29	Go Back N ARQ Protocol	
30	Stop and Wait ARQ Protocol	
31	Selective Repeat ARQ Protocol Part – 1	
32	Selective Repeat ARQ Protocol Part – 2	