	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
32	Various Medium Access Control Protocols in Data Link Layer
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
37	CSMA/CA in Computer Network Full Explanation
38	Question on CSMA/CD
39	Ethernet Frame Format (IEEE-802.3) in Data Link Layer
40	Token Ring (IEEE 802.5) in Computer Network
41	Network Layer Responsibilities of Network Layer OSI Model
42	Class A in IP Addressing with Example Class-full Addressing Network Layer
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
46	Find Range, Network ID, Host, Broadcast Address with Numerical Example
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
58 59	
29	<u>Distance Vector Routing Algorithm</u>

60	Count to Infinity Problem in Distance Vector Routing
61	<u>Link State Routing in Computer Network</u>
62	ARP Explained – Address Resolution Protocol Network Layer
63	NAT Explained – Network Address Translation with Example
64	Transport Layer Responsibilities of Transport Layer OSI Model
65	Why Both IP and Port Address is Used for Connection Socket Address Real Life Example
66	TCP: Transmission Control Protocol TCP Header Transport Layer Part-1
67	TCP: Transmission Control Protocol TCP Header Transport Layer Part-2
68	TCP Connection Establishment and Connection Termination Transport Layer
69	TCP Data Transfer Piggybacking and Pure Acknowledgement
70	Connection Termination in TCP with Example
71	TCP Congestion Control in Computer Networks LIDD (Light Data range Protected) Light day in Computer Networks
72	UDP (User Datagram Protocol) Header in Computer Network
73	Advantages of UDP Protocol Over TCP Transport Layer
74	TCP vs UDP Differences Session Layer of OSI Model Session Layer Functions
75 76	Session Layer of OSI Model Session Layer Functions Presentation Layer in Computer Network OSI Model
76	Presentation Layer in Computer Network OSI Model Application Layer of OSI Model Application Layer Protocols and Port No
78	Domain Name System (DNS) in Computer Networks
79	Domain Name Server (DNS) and Its Types
80	HTTP, FTP, SMTP, FOP Application Layer Protocols
81	Persistent vs Non-Persistent HTTP HTTP/1.0 vs HTTP/1.1
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
85	Question on Network Security Symmetric Key Cryptography
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	Transport Mode vs Tunnel Mode in IPSec
97	Basic of Communication
98	Bandwidth vs Throughput vs Latency
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
SOURCE: 02	Cyber and Information Security
01	<u>Information Security Basic Concepts</u>
02	Information Security Management and Governance
03	Cryptography Hashing Ciphering
04	Message Authentication, SSL, TSL and Digital Signature
05	Risk Management and Business Continuity Management
06	Computer Security, Platform, Virtualization and Hyper-V
07	<u>Digital Forensics and Incident Response, Evidence</u>
08	<u>User Authentication, Passwords, Tokens and Biometrics</u>
09	Identity Management and Access Control, OpenId
10	Communication Security, TSL, TCP/IP, HTTPS, SSL
11	Network Perimeter Security, Firewalls, Proxies
12	Malicious Software, Attacks and Application Security
12	Review and Recap – Project
13	OWASP Top 10, Injection, XSS, Authentication Attack