SAVEETHA ENGINEERING COLLEGE
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NAAC A GRADE

Question Repository for DEC 2025 Examinations

Subject Code	**19AI602**	**Subject Name**	**Computer Networks**	**Common To**
Faculty Name	**Dr. P.SUNDARAVADIVEL**	**Department**	**AIML**	**CSE/IT/IOT/CYBER AI&DS/AI&ML**

(PART A – 2 Marks)

UNIT - I

Q. No	Questions	CO	Knowledge Level (Blooms)	Difficulty Level (1-5)
QA101	Define computer networks and state their importance in real-world applications.	CO1	K1	1
QA102	What are the types of network topologies?	CO1	K1	1
QA103	Differentiate between OSI and TCP/IP models.	CO1	K1	1
QA104	List the different types of network devices and their functions.	CO1	K1	1
QA105	What is the role of a protocol in networking?	CO1	K1	1
*QA106	Explain the differences between LAN, WAN, and MAN.	CO1	K1	1
*QA107	Define bandwidth and latency in a network.	CO1	K1	1
*QA108	What are the advantages of structured cabling?	CO1	K1	1

UNIT – II

Q. No	Questions	CO	Knowledge Level (Blooms)	Difficulty Level (1-5)
QA201	What is an IP address?	CO2	K1	1
QA202	Differentiate between public and private IP addresses.	CO2	K1	1
QA203	Define subnet mask and its role in IP addressing.	CO2	K1	1
QA204	What is CIDR notation?	CO2	K1	1
QA205	Explain the importance of IPv6 over IPv4.	CO2	K1	1
*QA206	List the steps in binary-to-decimal IP conversion.	CO2	K1	1
*QA207	Define VLSM (Variable Length Subnet Masking).	CO2	K1	1
*QA208	What is the purpose of the loopback address?	CO2	K1	1

UNIT – III

Q. No	Questions	CO	Knowledge Level (Blooms)	Difficulty Level (1-5)
QA301	What is the purpose of Ethernet standards?	CO3	K1	1
QA302	Define MAC address.	CO3	K1	1
QA303	Differentiate between collision domain and broadcast domain.	CO3	K1	1
QA304	What is VLAN segmentation?	CO3	K1	1
QA305	List the advantages of VLANs.	CO3	K1	1
*QA306	What is trunking in VLAN configuration?	CO3	K1	1
*QA307	Explain Inter-VLAN routing.	CO3	K1	1
*QA308	Define 802.1Q encapsulation.	CO3	K1	1

UNIT – IV

Q. No	Questions	CO	Knowledge Level (Blooms)	Difficulty Level (1-5)
QA401	Define static routing.	CO4	K1	1
QA402	What is the difference between static and dynamic routing?	CO4	K1	1
QA403	List the metrics used in routing protocols.	CO4	K1	1
QA404	Define RIP and its purpose.	CO4	K1	1
QA405	What is the difference between RIP and OSPF?	CO4	K1	1
*QA406	Explain the purpose of a routing table.	CO4	K1	1
*QA407	Define convergence in routing.	CO4	K1	1
*QA408	What is the role of a default route?	CO4	K1	1

UNIT – V

Q. No	Questions	CO	Knowledge Level (Blooms)	Difficulty Level (1-5)
QA501	What is an ACL in networking?	CO5	K1	1
QA502	Differentiate between standard and extended ACL.	CO5	K1	1
QA503	Explain the function of NAT.	CO5	K1	1
QA504	What is DHCP and its role in networks?	CO5	K1	1
QA505	List the types of WAN technologies.	CO5	K1	1
*QA506	Define PPP protocol.	CO5	K1	1
*QA507	What is HDLC protocol?	CO5	K1	1
*QA508	State one security feature provided in ACLs.	CO5	K1	1

(PART B – 13 Marks - Either Or Type)

UNIT - I

Q. No	Questions	CO	Knowledge Level (Blooms)	Difficulty Level (1-5)
QB101 (a)	Explain OSI and TCP/IP reference models with diagrams	CO1	K3	2
	(Or)			
QB101 (b)	Differentiate LAN, WAN, and MAN with examples.	CO1	K3	3
QB102 (a)	Discuss in detail about Unguided Media for Transmission.	CO1	K3	2
	(Or)			
QB102 (b)	Explain in detail about TCP/IP protocol suite with neat diagram.	CO1	K3	3
QB103 (a)	Distinguish between Point to Point links and Multi Point links. Demonstrate the types of Network Topology with their advantages and disadvantages and suitable diagrams.	CO1	K3	2
	(Or)			
QB103 (b)	Discuss in detail about the Guided Media for Transmission with their types and its connector to be used for different applications.	CO1	K3	3
*QB104 (a)	Explain in detail the components of data communication and the different categories of Networks.	CO1	K2	2
	(Or)			
*QB104 (b)	How the Transport layer is responsible for process-to-process delivery of the entire message in the Network Model. Explain the responsibilities of Transport layer with a detailed performance.	CO1	K3	3

UNIT - II

Q. No	Questions	CO	Knowledge Level (Blooms)	Difficulty Level (1-5)
QB201 (a)	List the classes in Classful Addressing and define the Application of each class	CO2	K3	2
	(Or)			
QB201 (b)	Discuss in detail about Internet Protocol Datagram in the Network Layer.	CO2	K3	3
QB202 (a)	State IPv4 address with suitable example. Find the class of each address. a. 00000001 00001011 00001011 11101111 b. 11000001 10000011 00011011 11111111 c. 14.23.120.8 d. 252.5.15.111	CO2	K3	2
	(Or)			
QB202 (b)	With a neat diagram explain Distance Vector Routing Protocol..	CO2	K3	3
*QB203 (a)	Explain in detail about Link State Routing Algorithm	CO2	K3	3
	(Or)			
*QB203 (b)	Why subnetting is necessary? With suitable example, develop the concept of subneting in class B network.	CO2	K3	3
QB204 (a)	Discuss Internet Control Message Protocol version 4 with its Frame format. error-reporting or error-correcting mechanism	CO2	K3	2
	(Or)			

QB204 (b)	**Define and describe Classful Addressing and Classless Addressing.**	**CO2**	**K2**	**2**

UNIT - III

Q. No	Questions	CO	Knowledge Level (Blooms)	Difficulty Level (1-5)
QB301 (a)	**Explain VLAN segmentation and its advantages.**	**CO3**	**K3**	**2**
	(Or)			
QB301 (b)	**Discuss Inter-VLAN routing with configuration example.**	**CO3**	**K3**	**2**
QB302 (a)	**Explain Ethernet frame format.**	**CO3**	**K3**	**2**
	(Or)			
QB302 (b)	**Differentiate between broadcast and collision domains with examples.**	**CO3**	**K3**	**2**
QB303 (a)	**Discuss trunking with 802.1Q and its purpose.**	**CO3**	**K3**	**2**
	(Or)			
QB303 (b)	**Explain Spanning Tree Protocol (STP) and its importance.**	**CO3**	**K3**	**2**
***QB304 (a)**	**Configure and troubleshoot VLANs in a small network.**	**CO3**	**K3**	**2**
	(Or)			

***QB304 (b)**	**Discuss the need for MAC addressing in Ethernet communication.**	**CO3**	**K3**	**2**

UNIT - IV

Q. No	Questions	CO	Knowledge Level (Blooms)	Difficulty Level (1-5)
QB401 (a)	**Explain RIP routing protocol with configuration.**	**CO4**	**K3**	**2**
	(Or)			
QB401 (b)	**Discuss OSPF protocol and its advantages.**	**CO4**	**K3**	**2**
QB402 (a)	**Explain static vs dynamic routing with examples.**	**CO4**	**K3**	**2**
	(Or)			
QB402 (b)	**Discuss routing table and metrics with example.**	**CO4**	**K3**	**2**
QB403 (a)	**Explain the process of route summarization.**	**CO4**	**K3**	**2**
	(Or)			
QB403 (b)	**Differentiate distance-vector and link-state routing protocols.**	**CO4**	**K3**	**2**
***QB404 (a)**	**Explain convergence in routing protocols.**	**CO4**	**K3**	**2**

	(Or)			
***QB404 (b)**	**Describe default routing with an example.**	**CO4**	**K3**	**2**

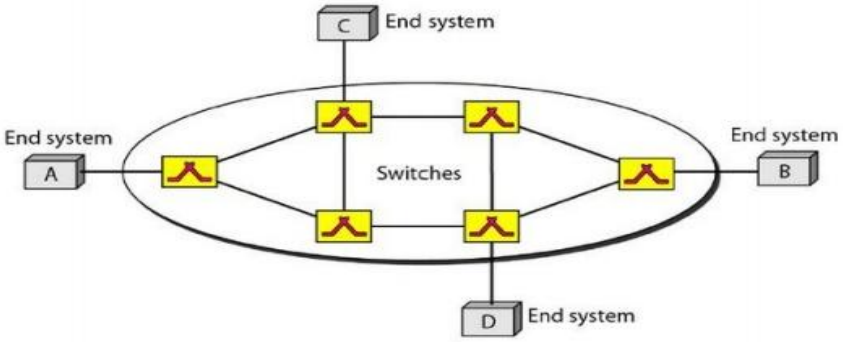
UNIT - V

Q. No	Questions	CO	Knowledge Level (Blooms)	Difficulty Level (1-5)
QB501 (a)	**Explain standard and extended ACL configuration with examples.**	**CO5**	**K3**	**2**
	(Or)			
***QB501 (b)**	**Discuss DHCP operation and configuration.**	**CO5**	**K3**	**2**
***QB502 (a)**	**Explain PPP and HDLC protocols.**	**CO5**	**K3**	**2**
	(Or)			
***QB502 (b)**	**Discuss the role of NAT in WAN connectivity.**	**CO5**	**K3**	**2**
QB503 (a)	**Explain how ACLs enhance network security.**	**CO5**	**K3**	**2**
	(Or)			
QB503 (b)	**Discuss the working of SNMP in WAN management.**	**CO5**	**K3**	**2**
***QB504 (a)**	**Differentiate static NAT, dynamic NAT, and PAT.**	**CO5**	**K3**	**2**
	(Or)			

***QB504 (b)**	**Explain the use of ACLs in firewall configuration.**	**CO5**	**K3**	**2**

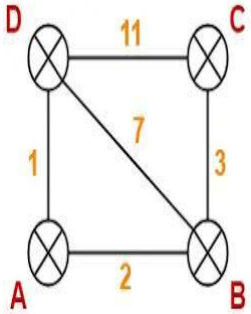
(PART C – 15 Marks - Either Or Type)

UNIT - I

Q. No	Questions	CO	Knowledge Level (Blooms)	Difficulty Level (1-5)
***QC101 (a)**	**Explain how the addressing helps in transferring the Data from the Sender to Receiver and find the path for the data hop through the Network Routers to reach the Destination.**	**CO1**	**K3**	**4**
	(Or)			
QC101 (b)	**Assume the Income and Outcoming of the Switches and its table. Elaborate the process of data transfer from Source A to Source B using Virtual Circuit Network.** 	**CO1**	**K3**	**3**

UNIT - II

Q. No	Questions	CO	Knowledge Level (Blooms)	Difficulty Level (1-5)

QC201 (a)	**An organization is granted a block of addresses with the beginning address 14.24.74.0/24. The organization needs to have 3 subblocks of addresses to use in its three subnets: one subblock of 10 addresses, one subblock of 60 addresses, and one subblock of 120 addresses. Design the subblocks.**	**CO2**	**K4**	**4**
	(Or)			
***QC201 (b)**	**The network shown below uses a Distance Vector Routing. Construct a Shortest Path Tree from 0 to 4.** 	**CO2**	**K3**	**3**

UNIT - III

Q. No	Questions	CO	Knowledge Level (Blooms)	Difficulty Level (1-5)
QC301 (a)	**Discuss VLAN trunking protocol (VTP) with configuration steps and diagram.**	**CO3**	**K3**	**3**
	(Or)			

***QC301 (b)**	**Design a network with VLAN segmentation and explain Inter-VLAN routing.**	**CO3**	**K3**	**3**

UNIT - IV

Q. No	Questions	CO	Knowledge Level (Blooms)	Difficulty Level (1-5)
***QC401 (a)**	**Compare RIP and OSPF in terms of metrics, convergence, and scalability.**	**CO4**	**K3**	**3**
	(Or)			
QC401 (b)	**Explain the process of OSPF area configuration with an example.**	**CO4**	**K3**	**3**

UNIT - V

Q. No	Questions	CO	Knowledge Level (Blooms)	Difficulty Level (1-5)
QC501 (a)	**Design an ACL to allow only HTTP and HTTPS traffic while denying all others. Explain step by step.**	**CO5**	**K3**	**3**
	(Or)			
***QC501 (b)**	**Discuss WAN technologies and compare PPP and HDLC with diagrams.**	**CO5**	**K3**	**3**