

UNIT-4: NETWORK LAYER

Multiple Choice Questions

1. Which OSI layer is responsible for routing?

- a) Physical Layer
- b) Data Link Layer
- c) Network Layer
- d) Transport Layer

Ans: c) Network Layer

2. The PDU of the Network Layer is called:

- a) Frame
- b) Segment
- c) Packet
- d) Bit

Ans: c) Packet

3. Which device operates at the Network Layer?

- a) Hub
- b) Bridge
- c) Router
- d) Repeater

Ans: c) Router

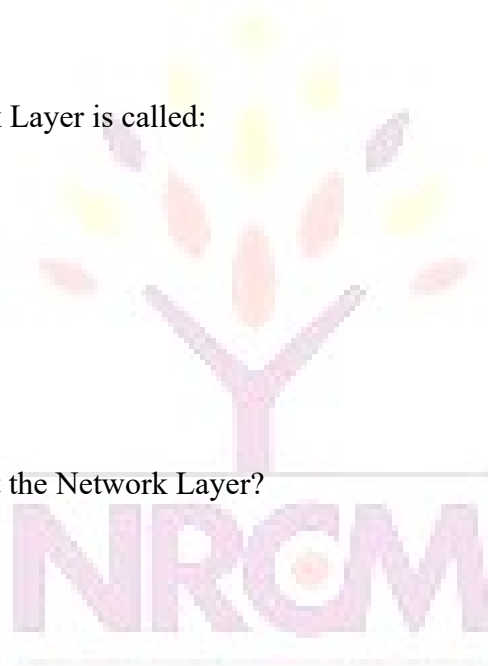
4. IP stands for:

- a) Internet Process
- b) Internal Protocol
- c) Internet Protocol
- d) Interconnection Process

Ans: c) Internet Protocol

5. The main function of routing is to:

- a) Detect errors
- b) Select the best path
- c) Encrypt data



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d) Compress data

Ans: b) Select the best path

6.The size of an IPv4 address is:

a) 16 bits

b) 32 bits

c) 64 bits

d) 128 bits

Ans: b) 32 bits

7.The size of an IPv6 address is:

a) 32 bits

b) 64 bits

c) 128 bits

d) 256 bits

Ans: c) 128 bits

8.Which protocol is used for logical addressing?

a) TCP

b) UDP

c) IP

d) HTTP

Ans: c) IP

9.Subnetting is used to:

a) Increase network efficiency

b) Encrypt data

c) Compress packets

d) Detect errors

Ans: a) Increase network efficiency

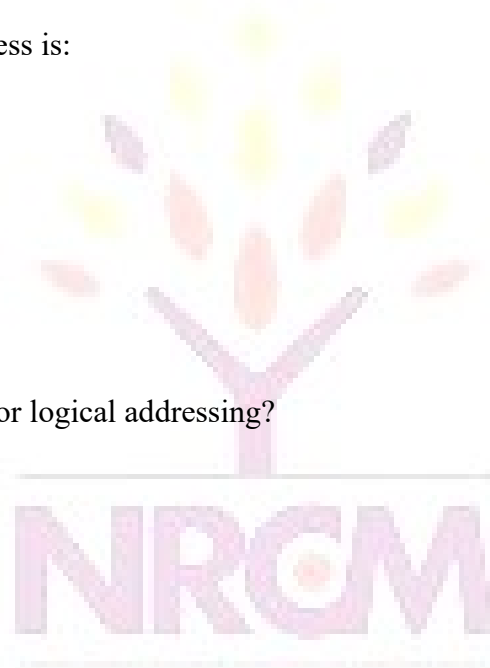
10.A subnet mask is used to identify:

a) Source Port

b) Destination Port

c) Network and Host portions

d) MAC Address



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Ans: c) Network and Host portions

11. Fragmentation occurs when:

- a) A packet is too large for the network
- b) Data is encrypted
- c) Data is compressed
- d) Frames are lost

Ans: a) A packet is too large for the network

12. Which routing protocol is based on distance vector routing?

- a) OSPF
- b) RIP
- c) BGP
- d) FTP

Ans: b) RIP

13. OSPF stands for:

- a) Open System Path First
- b) Open Shortest Path First
- c) Optical Shortest Path First
- d) Open Standard Path Forwarding

Ans: b) Open Shortest Path First

14. Congestion occurs when:

- a) Traffic exceeds network capacity
- b) Data is encrypted
- c) Routing tables are updated
- d) IP addresses are assigned

Ans: a) Traffic exceeds network capacity

15. Which addressing is provided by the Network Layer?

- a) Physical Addressing
- b) Logical Addressing
- c) Port Addressing
- d) MAC Addressing

Ans: b) Logical Addressing



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16.IPv6 was introduced mainly because:

- a) IPv4 is slow
- b) IPv4 lacks security
- c) IPv4 addresses are exhausted
- d) IPv4 is expensive

Ans: c) IPv4 addresses are exhausted

17.Dynamic routing differs from static routing because it:

- a) Requires manual updates
- b) Updates routes automatically
- c) Uses no routing tables
- d) Works only in LANs

Ans: b) Updates routes automatically

18.Which of the following is a Network Layer protocol?

- a) HTTP
- b) FTP
- c) IP
- d) SMTP

Ans: c) IP

19.The route followed by a packet is determined by:

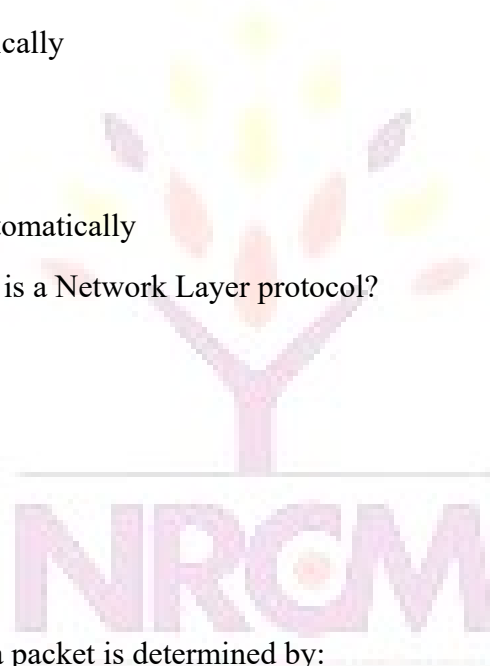
- a) Flow Control
- b) Routing Algorithm
- c) Framing
- d) Error Detection

Ans: b) Routing Algorithm

20.The main functions of the Network Layer include:

- a) Routing and Logical Addressing
- b) Framing and Error Detection
- c) Session Management
- d) Data Encryption

Ans: a) Routing and Logical Addressing



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Fill in the Blanks

1. The Network Layer is the _____ layer of the OSI model.
Ans: Third
2. The primary function of the Network Layer is _____.
Ans: Routing
3. The protocol used at the Network Layer of the Internet is _____.
Ans: IP
4. IP stands for Internet _____.
Ans: Protocol
5. A device that operates at the Network Layer is called a _____.
Ans: Router
6. Routing is the process of selecting the best _____.
Ans: Path
7. The Network Layer data unit is called a _____.
Ans: Packet
8. IPv4 addresses are _____ bits long.
Ans: 32
9. IPv6 addresses are _____ bits long.
Ans: 128
10. Dividing a network into smaller networks is called _____.
Ans: Subnetting
11. A subnet mask is used to identify the network and _____ portions of an IP address.
Ans: Host
12. The process of converting a packet into smaller pieces is called _____.
Ans: Fragmentation
13. Reassembling fragmented packets is done at the _____.
Ans: Destination
14. Congestion occurs when network traffic exceeds available _____.
Ans: Resources
15. Static routing uses manually configured _____ tables.
Ans: Routing

16. Dynamic routing automatically updates routing _____.

Ans: Tables

17. RIP stands for Routing Information _____.

Ans: Protocol

18. OSPF stands for Open Shortest Path _____.

Ans: First

19. IPv6 was developed to overcome IPv4 address _____.

Ans: Exhaustion

20. The Network Layer provides logical _____.

Ans: Addressing



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