

(7 pages)

Reg. No. :

Code No. : 6026

Sub. Code : WCAE 12/
VACE 14

M.C.A. (CBCS) DEGREE EXAMINATION,
APRIL 2025

First Semester

Computer Applications

Elective – II – ADVANCED COMPUTER NETWORKS

(For those who joined in July 2023 only)

Time : Three hours

Maximum : 75 marks

PART A — (15 × 1 = 15 marks)

Answer ALL questions.

Choose the correct answer :

1. Which protocol is commonly used for sending emails?
(a) HTTP (b) FTP
(c) SMTP (d) DNS

2. The HTTP protocol, responsible for web page retrieval, operates at which OSI layer?
(a) Application layer
(b) Presentation layer
(c) Transport layer
(d) Data Link layer
3. Which of the following is an example of unguided (wireless) media?
(a) Ethernet cable (b) Fiber optic cable
(c) Bluetooth (d) Coaxial cable
4. Which network type is more suitable for real-time applications, like voice calls?
(a) Circuit-switched networks
(b) Packet-switched networks
(c) Message-switched networks
(d) Cell-switched networks
5. In a virtual circuit network, _____ layer of the OSI model is responsible for establishing and managing virtual circuits.
(a) Network layer (b) Transport layer
(c) Session layer (d) Data Link layer

6. _____ of the following is a common example of wired LAN technology?
- (a) Wi-Fi (b) Ethernet
(c) Bluetooth (d) Cellular
7. Which device operates at the network layer and is responsible for forwarding data packets between different networks or subnets?
- (a) Router (b) Hub
(c) Switch (d) Modem
8. _____ of the following is not a class of IPv4 address.
- (a) Class A (b) Class B
(c) Class C (d) Class D
9. What is the primary advantage of multicast routing over unicast routing for one-to-many communication?
- (a) Reduced network traffic
(b) Faster data transmission
(c) Simplicity in routing tables
(d) Improved security
10. Which transport layer protocol provides a connection-oriented and reliable data transfer mechanism, commonly used for web traffic?
- (a) HTTP (b) UDP
(c) TCP (d) ICMP
11. In TCP (Transmission Control Protocol), which congestion control algorithm is used to control the flow of data and avoid congestion in the network?
- (a) TCP/IP
(b) TCP Vegas
(c) TCP Reno
(d) TCP/IP Fast Recovery
12. Which QoS technique involves distributing network traffic across multiple paths to improve redundancy and reliability?
- (a) Packet filtering
(b) Load balancing
(c) Quality of Experience (QoE)
(d) Bandwidth reservation

13. In the domain name space, what does the term "TLD" stand for?
- (a) Top-Level Domain
 - (b) Total Load Distribution
 - (c) Top-Level Directory
 - (d) The Last Domain
14. Which protocol is commonly used for remote logging and sending log data to a central server?
- (a) HTTP
 - (b) SMTP
 - (c) SSH
 - (d) syslog
15. Which SNMP message type is used to retrieve information from an SNMP agent?
- (a) GET
 - (b) SET
 - (c) TRAP
 - (d) RESPONSE

PART B — (5 × 4 = 20 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

16. (a) Write about the components of data communications.
- Or
- (b) What is TCP/IP protocol suite?

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17. (a) What is virtual circuit network and its types?
- Or
- (b) Explain the use of cellular telephony.
18. (a) Write about Network layer delivery.
- Or
- (b) Explain about Internet Group Management Protocol.
19. (a) Write about process to process delivery.
- Or
- (b) Explain about UDP protocol.
20. (a) What is the DNS distribution of namespaces?
- Or
- (b) Explain the role of email services.

PART C — (5 × 8 = 40 marks)

Answer ALL the questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

21. (a) Describe the layers in OSI model.
- Or
- (b) Explain about Guided media.

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22. (a) Discuss about wireless LAN.

Or

(b) Describe about Flow and Error control.

23. (a) Demonstrate the IPv6 addressing in the network layer.

Or

(b) Illustrate the unicast and multicast routing protocols.

24. (a) Describe Quality of Service (QoS) and Explain common techniques used to enhance QoS.

Or

(b) Analyze the TCP congestion control protocol, examining its key mechanisms.

25. (a) How does file transfer take place in computer networks, and what are the common protocols and methods used for efficient and secure file transfers? Explain.

Or

(b) Analyze the functions and significance of the SNMP (Simple Network Management Protocol) in network management and monitoring.