



NALANDA COLLEGE-COLOMBO 10
G.C.E.(Advanced Level)
Information & Communication Technology
Unit Test
UNIT 6-Networking and Data Communication

MCQ

1. "GPRS" stands for.....

- (1) General Protocol Recall Service (2) Generation Packet Radio Service
(3) General Protocol Recall Service (4) General Packet Radio Service
(5) General Protocol Radio Service

2. Given below are some of the advantages of using fiber optic cable over copper wires in data communication.

- A. Electromagnetic waves do not interfere.
B. High speed of transmission.
C. Resistance to mechanical shocks.
D. Ability to wire with sharp bends.
E. Higher distance of data transmission.

Which of the following consist of true statements?

- (1) (A) and (B) only. (2) (B), (C) and (D) only. (3) (A), (B), (C) and (E) only.
(4) (A), (B), (C) and (D) only. (5) All of the above.

3. Consider the following statements.

- A – Monotype waves travel in a baseband communication channel.
B – Various types of waves travel in a broadband communication channel.
C – Frequency is measured in bps (bits per second) in broadband.

Which of the above statement/s is/are correct?

- (1) A only. (2) B only. (3) A and B only. (4) A and C only. (5) All A,B and C .

4. Which of the following data communication medium is used in frequency division multiplexing?

- (1) Digital signal (2) Analog signal (3) Digital and analog signal
(4) Laser beam and Infrared beam (5) Infrared beam and Bluetooth

5. What is the maximum number of host computers that can be connected to a network of IP address – 192.168.10.7 and a Subnet mask of 255.255.255.192?

- (1) 32 (2) 62 (3) 64 (4) 126 (5) 128

6. Which of the following servers converts the web addresses into IP address?

- (1) Web server (2) DNS Server (3) DHCP Server
(4) File server (5) FTP server

7. Which of the following devices sends data packets only to receiving device?

- (1) Hub (2) Switch (3) Bridge (4) Repeater
(5) Modem

8. Which layers of OSI model connect with networking?

- (1) Application layer and Presentation layer (2) Session layer and Transport layer
(3) Transport layer and Network layer (4) Network layer and Application layer
(5) Data link layer and Physical layer

9. Which of the following is a possible IP address in a network with IP address 172.16.10.5 and subnet mask 255.255.248.0

- (1) 172.16.10.10 (2) 172.16.10.5 (3) 172.16.8.0 (4) 172.16.10.0
(5) 172.16.10.16

10..... is used for analog signal to digital signal conversion. Which of the following is most appropriate to fill the blank in the above statement?

- (1) Frequency Modulation (FM) (2) Phase Modulation (PM) (3) Amplitude Modulation (AM)
(4) Pulse Code Modulation (PCM) (5) Time Division Modulation (TDM)

11. A computer in a network is configured with the IP address 192.245.16.90 and the subnet mask 255.255.255.128.

Which of the following IP addresses cannot be assigned to a computer in the same network?

- (1) 192.245.16.161 (2) 192.245.16.78 (3) 192.245.16.110 (4) 192.145.16.75
(5) 192.245.16.120

12. Which of the following statements is correct with respect to the Transmission Control Protocol (TCP)?

- (1) TCP is a network layer protocol.
(2) TCP guarantees that each byte sent is received at the receiver.
(3) Only one application at a time can use TCP in a computer.
(4) HTTP uses TCP.
(5) TCP uses User Datagram Protocol (UDP) as the transport protocol.

13. A LAN uses the subnet mask 255.255.248.0. How many different IP addresses can be assigned to devices in this LAN?

- (1) 254 (2) 256 (3) 1024 (4) 2046 (5) 4094

14. Local Area Network has 400 devices. What is the most appropriate subnet mask for this computer network ?

- (1) 255.255.255.0 (2) 255.255.254.0 (3) 255.255.252.0 (4) 255.255.255.0
(5) 255.255.255.128

15. Device 'A' communicating with device 'B' using odd parity check error detection mechanism when device 'A' is sending 10110 what will be received by device 'B'?

- (1) 101100 (2) 11110 (3) 110100 (4) 11111

(5) 110110

16. Person 'A' has a private key (priv A) and public key (pub A) and need to communicate with person 'B' who has priv B and pub B.

What should person 'A' requires to send an encrypted message to person 'B'

- (1) Only priv A (2) Only pub B (3) Only priv B (4) Only pub A
(5) Both priv B and pub B

17. What is the Subnet Mask of 192.168.17.34 / 27?

- (1) 255. 255. 255.0 (2) 255.255.254.0 (3) 255.255.255.192 (4) 255.255.192.0
(5) 255.255.255.224

18. Which of the following is not a responsibility of the Data-Link layer?

- (1) Establishing the link. (2) Performing routing functions. (3) Terminating the link.
(4) a and c (5) a and b

19. Which of the following transmission media is/are suitable for outdoor networking?

- (1) Coaxial Cable (2) Optical Fiber (3) UTP Cable (4) a and b
(5) a and c

20. Which statement explains the function of DNS protocol?

- (1) Converts IP address to MAC address
(2) Is used to find out MAC address if IP address is known
(3) Converts Domain Name into an IP address
(4) Is used to find out IP address if MAC address is known
(5) None of the above

21. In the OSI reference model, the network layer is responsible for communication

Which of the following is suitable to fill the blank in the above statement?

- (1) node to switch (2) source to destination (3) hop to hop (4) switch to router
(5) process to process

22. In the OSI reference model, a protocol data unit of the network layer is referred to as a Which of the following terms is suitable to fill the blank in the above statement?

- (1) frame (2) segment (3) window (4) message (5) packet

23. The network layer of OSI model does not

- (1) Performs routing functions. (2) Reports delivery errors
(3) Formats and encrypts data to be sent across a network
(4) Performs fragmentation (5) Handles packet sequencing

24. Which of the following statements regarding MAC addresses is correct?

- (1) Every network device has a unique MAC address.
- (2) Every network host has a unique MAC address.
- (3) Every network interface has a unique MAC address.
- (4) It is assigned for a device at the time of configuration.
- (5) It is a 32 - bit address.

25. In electronic mail systems, the protocol used by mail clients to retrieve messages from the mail server is

- (1) Simple Mail Transfer Protocol (SMTP).
- (2) File Transfer Protocol (FTP).
- (3) Internet Control Message Protocol (ICMP).
- (4) Internet Message Access Protocol (IMAP).
- (5) Telnet.

26. The transport layer protocol User Datagram Protocol (UDP) can be used for

- (1) reliable communication.
- (2) guaranteed delivery.
- (3) connection oriented communication.
- (4) ordered delivery.
- (5) exchanging state information among routers.

27. In TCP/IP computer networks. Transport Protocol Data Unit (TPDU) is referred to. as a

- (1) packet.
- (2) frame.
- (3) segment.
- (4) window.
- (5) message.

28. 172.16.48.200/24 is a

- (1) host address in a class B network.
- (2) network address of a class C network.
- (3) network address of a subnet with 255 hosts.
- (4) host address in 172.16.48.0/24 subnet.
- (5) host address with 8 network bits.

29. What is/are the most suitable device/s to have internet connection for a LAN which holds sensitive data and is assigned with private IP addresses?

A. Router B. Firewall C. Proxy server

- (1) A only (2) B only (3) B and C only (4) A and C only (5) A, B, C All

30. Which of the following layer of OSI reference model that is responsible for data transmission through a communication media.

- (1) Transport layer (2) Session layer (3) Physical layer (4) Network layer
- (5) Data link layer

Structured Essay

1.
 - a. Compare and contrast fibre optic cables over other transmission media.
 - b. Briefly describe three types of transmission impairments.
 - c. What is meant by modulation?
 - d. What type/s of modulation could be used when we need to transmit digital data through an Analog PSTN system?
 - e. When and how the Pulse Code Modulation is used?
 - f. During data transmission, sometimes data bits may get flipped due to various reasons. Describe one error detection technique.
2.
 - a. State 4 types of network topologies with suitable diagrams.
 - b. What is meant by multiplexing and de-multiplexing?
 - c. Briefly describe how modem is useful in a PSTN.
 - d. Briefly describe following devices.
 - i. Hub
 - ii. Switch
 - iii. Repeater
 - iv. Router
 - e. Explain the method of identifying devices in a LAN.

Essay

1.
 - i) There are three types of addressing schemes used in networking. Briefly explain each type.
 - ii) What is the difference between IPv4 and IPv6 addressing schemes?
 - iii) Write down the valid addresses range in IPv4.
 - iv) State the main purpose of subnetting.
 - v) Write down 4 advantages of subnetting.
2.
 - i) Compare and contrast two transport layer protocols TCP and UDP.
 - ii) State applications for each type of protocol that you have mentioned above.
(two examples for one type at least).
 - iii) Write down network devices which are associated with following layers.
 - a. Network Layer
 - b. Data link Layer
 - c. Physical Layer
3. Consider the following IP address which is assigned to a computer in a company network.
200.54.30.80/26
 - i) Write down the subnet mask of the above network.
 - ii) Find the network address of the above subnetwork.
 - iii) Find the broadcast address of the above subnetwork.
 - iv) Write down the address range which can be assigned to hosts in that subnetwork.
 - v) Find the number of subnets within the company.
 - vi) Draw a suitable network diagram to show how this computer is connected within this network.

4.

i) Explain following terms which are related with network security.

- a. Encryption
- b. Confidentiality
- c. Digital Signature

ii) Compare and contrast symmetric key encryption and asymmetric key encryption.

iii) Illustrate how sender(A) transmits a secure message to recipient(B) using a public key system.

(Use a suitable diagram to explain)

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