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MID-TERM EXAMINATION PAPER

FACULTY	:	**COMPUTER SCIENCE AND MULTIMEDIA**
COURSE	:	**BACHELOR OF INFORMATION TECHNOLOGY(BIT)**
YEAR/ SEMESTER	:	**SECOND YEAR / FOURTH SEMESTER**
MODULE TITLE	:	**TCP/IP**
DATE	:	**6TH MARCH 2022**
TIME ALLOWED	:	**3 HOURS**
START	:	**6:30 AM – 09:30 AM**
SET	:	**A**

Instruction to candidates

1. This question paper has THREE (3) Section

2. Answer **ALL** questions in Section A, MCQ.

3. Answer **5** questions in Section B, MSAQ

4. Answer **2** questions in Section C, MEQ

5. No scripts or answer sheets are to be taken out of the Examination Hall.

6. For Section A, answer in the OMR form provided.

Do not open this question paper until instructed.

(Candidates are required to give their answers in their own words as far as practicable)

SECTION A

Multiple Choice Questions (30*1=30)

1. Which of the following services use TCP?
   a. DHCP
   b. SMTP
   c. HTTP
   d. TFTP

2. Which protocol works at the transport layer provides connectionless service between hosts?
   a. UDP
   b. TCP
   c. ARP
   d. IP

3. Which protocol operates at the transport layer and provides virtual circuits between hosts?
   a. UDP
   b. TCP
   c. ARP
   d. IP

4. If a router interface is congested, which protocol in the IP suite is used to inform neighboring routers?
   a. TCP
   b. IP
   c. ICMP
   d. ARP

5. What is the valid host range that the IP address 172.16.10.22/255.255.255.240 belongs to?
   a. 172.16.10.20 to 172.16.10.22
   b. 172.16.10.17 to 172.168.10.30
   c. 172.16.10.17 to 182.168.10.31
   d. 172.16.10.1 to 172.16.10.255

6. Which type of topology is best suited for large business which must carefully control and coordinate the operation of distributed branch outlets?
   a. Ring
   b. Local area
   c. Hierarchical
   d. Star

7. Which of the following transmission directions listed in not a legimate channel?
   a. Simplex
   b. Half Duplex
   c. Full Duplex
   d. Double Duplex

8. "Parity bits" are used for which of the following purposes?
   a. Encryption of data
   b. To transmit faster
   c. To detect errors
   d. To identify the user

9. What kind of transmission medium is most appropriate to carry data in a computer network that is exposed to electrical interfaces?
   a. Unshielded twisted pair
   b. Optical fiber
   c. Coaxial cable
   d. Microwave

10. Which software prevents the external access to a system?
  a. **Firewall**
  b. Gateway
  c. Router
  d. Virus checker

11. The term FTP stands for?
  a. File transfer program
  b. File transmission protocol
  c. **File transfer protocol**
  d. File transfer protection

12. Which one of the following is not a network topology?
  a. Star
  b. Ring
  c. Bus
  d. **Peer to peer**

13. The maximum length of an IPv4 datagram is?
  a. 32
  b. 1024
  c. **65535**
  d. 512

14. The length of an IPv6 is?
  a. 32 bits
  b. 64 bits
  c. **128 bits**
  d. 256 bits

15. Which of the following IP address can be used as a loop-back address?
  a. 0.0.0.0
  b. **127.0.0.1**
  c. 255.255.255.255
  d. 0.255.255.255

16. The term IANA stands for?
  a. **Internet Assigned Numbers Authority**
  b. **Internet Assigned Numbers Authority**
  c. Internet Associative Number Authoritative
  d. Internal Associative Number Authority

17. In specific, if the systems use separate protocols, which one of the following devices is used to link two systems?
  a. repeater
  b. **Gateway**
  c. Bridge
  d. Hub

18. Telnet
  a. **allows user to connect client machine**
  b. transferring files
  c. sharing files
  d. none of above

19. Which protocols finds the MAC address from IP address?
  a. SMTP
  b. ICMP
  c. **ARP**
  d. RARP

20. Which of the following is not the Networking Devices?
    a. Routers
    b. Firewalls
    c. Gateway
    d. Modems

21. What does the port number of the TCP connection specify?
    a. It specifies the communication process on the two end systems.
    b. It specifies the quality of the data and connection.
    c. It specifies the size of data.
    d. All of the above.

22. TCP/IP is related to _____
    a. OSI
    b. DECNET
    c. ALOHA
    d. ARPANET

23. An application-level protocol in which a few manager stations control a set of agents, known as
    a. HRML
    b. TCP
    c. SNMP
    d. SNMP/IP

24. Which protocol is connection oriented?
    a. HTML
    b. UDP
    c. IP
    d. TCP

25. Which protocol is closely related to SCTP?
    a. TCP
    b. UDP
    c. SNMP
    d. OSI

26. What is the first octate range of Class A address?
    a. 0-124
    b. 0-125
    c. 0-126
    d. 0-127

27. You want to implement a mechanism that automates the IP configuration, including IP address, subnet mask, default gateway, and DNS information. Which protocol will you use to accomplish this?
    a. SMTP
    b. SNMP
    c. DHCP
    d. ARP

28. What is the host id of the address 130.8.23.12?
    a. 8.23.12
    b. 23.12
    c. 12
    d. None of the above

29. Which protocol deals with emails?
    a. FTP
    b. SMTP
    c. LPD
    d. X window

30. Ports are used for
    a. process-process communication
    b. device-device communication
    c. network-network communication
    d. user-user communication

SECTION B
Short Question Answer

Attempt any five (5) questions out of eight (8) questions   **(5*6=30)**

1. Differentiate between TCP and UDP. (Unit 4)
2. Explain briefly about IPv6 address. (Unit 7)
3. Explain with example TCP Header. (Unit 4)
4. Differentiate between SNMP and SCTP. (Unit 6, 8)
5. What is FQDN? Describe about different hierarchy in FQDN. (Unit 5)
6. Explain the term unicast, broadcast, multicast, any cast, full duplex, half duplex and simplex. Give an example for each. (Unit 1)
7. What is port and Socket addressing? (Unit 3)
8. Explain different types of ports and list some commonly used ports. (Unit 2)

SECTION C
Long Question Answer

Attempt any two (2) questions out of three (3) questions   **(2*20=40)**
1. A. Though IPV4 Addresses have more than 4 billion of available IP addresses but all are not in use. Why? Explain with concrete reason. (Unit 3)
    B. Is IPv6 ultimate solution for IP address? Justify (Unit 7)
2. Distribute Class B IPv4 Address to different department of ABC organization that has listed numbers of devices.
    i.   Finance = 12
    ii. Human Resource = 50
    iii. IT = 200
    iv. Reporting = 500
    v.   Remote Collector = 2000

    Please clearly explain every steps you have used to distribute the IP address. (Unit 4)

3. Explain OSI model in brief. Design a network for a hospital that has 3 departments, with various tools you have got. The network need to be secure and highly available. (Unit 1 & 4)