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MASTER OF COMPUTER APPLICATIONS DEGREE EXAMINATION
NOVEMBER -2022

SECOND SEMESTER

MCA 203 - DATA COMMUNICATION AND COMPUTER NETWORKS

(Under C.B.C.S. Revised Regulations W.e.f. 2020-2021)

(Common Paper to University and all Affiliated Colleges)

Time : 3 Hours Max. Marks :70

PART - A
(Compulsory)

Answer any FIVE of the following questions. Each question carries 4 marks. (5× 4= 20)

1. a) List and define various components in a network.
   b) Differentiate circuit switched networks and datagram networks.
   c) What are Backbone Networks? What is the purpose of those?
   d) Describe the differences between PPP and HDLC.
   e) Differentiate broadcasting and flooding.
   f) Write a note on four types of characteristics of a Flow.
   g) Differentiate between TCP and UDP.
   h) What is a Digital Signature? What purpose it can be used?
   i) What is a Client-Server Model? What are its benefits.
   j) What is the header format of HTTP reply message?

PART - B

Answer FIVE questions,choosing ONE question from each Unit. Each question carries 10 marks. (5× 10=50)

UNIT - I

2. With a neat diagram explain the OSI reference model in detail? Explain the functions performed in each layer.

(OR)

3. What is multiplexing? Explain in detail about various types of multiplexing.

UNIT - II

4. Explain the CSMA Protocols with illustrations.

(OR)

5. i) What is Blue tooth? Describe its functionality.
   ii) Briefly explain about Satellite networks.

UNIT - III

6. Explain ARP and RARP with examples.

(OR)

7. With an example explain any one of the multicasting routing algorithm.

UNIT - IV

8. With examples describe the three mechanisms by which congestion control is formulated in TCP.

(OR)

9. i) Explain the components involved in Cryptography.
   ii) Describe the techniques to improve QoS.

UNIT - V

10. Elaborate on the design issues of Application layer.

(OR)

11. Describe the various parts of e-mail address and show the process of sending and receiving e-mails.

I

II nd Semester

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MASTER OF COMPUTER APPLICATIONS DEGREE EXAMINATION, JANUARY - 2022

SECOND SEMESTER

PAPER MCA 203 : DATA COMMUNICATION AND COMPUTER NETWORKS

(Under C.B.C.S. New Regulations w.e.f. 2020-2021 and 2016-2017)

(Common paper to University and all Affiliated Colleges)

Time : 3 Hours **Max. Marks : 70**

PART - A

(Compulsory)

Answer any **FIVE** of the following questions. Each question carries **4** marks. **(5×4=20)**

1. a) List and define different network topologies.

   b) Define Logical, Physical and port addresses.

   c) What is Virtual LAN? What are its advantages?

   d) Write a brief note on ATM.

   e) Compare IPV4 and IPV6.

   f) Define Unicast routing and Multicast routing.

   g) Compare Flow control and Error control.

   h) Define a Public key and Private key.

   i) What is meant by Tunneling ? Explain.

   j) What is FTP? Explain it in brief.

PART-B

Answer **FIVE** questions, choosing **ONE** question from each Unit Each question carries **10** marks $(5 \times 10 = 50)$

UNIT-I

2. a) Describe the characteristics of layered architecture.

   b) Write a brief note on SONET.

(OR)

3. Describe about types of transmission media with their merits and demerits.

UNIT-II

4. What are the different types of error detection methods? Explain.

(OR)

5. What is high level data link control (HDLC)? Explain HDLC frame format in detail.

UNIT-III

6. Write a detailed note on services expected from the network layer.

(OR)

7. Describe in detail the operation of OSPF protocol by considering a suitable network.

8. a) Explain the features and applications of UDP.

b) Elucidate congestion control in datagram subnets.

(OR)

9. a) Write a note on Web security.

b) Explain any one of the Symmetric-key ciphers in brief.

UNIT-V

10. What is DNS? What is the purpose of it? Describe DNS in the internet.

(OR)

11. Explain about World wide Web Architecture in detail.

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MASTER OF COMPUTER APPLICATIONS DEGREE EXAMINATION — FEBRUARY 2021.

THIRD SEMESTER

MCA 302 : DATA COMMUNICATION AND COMPUTER NETWORKS

(Under CBCS Revised New Regulation w.e.f 2016-2017)

(Common paper to University and all Affiliated Colleges)

(Regular/Supplementary)

Time : 3 hours Max. Marks : 80

PART – A

Answer any FIVE of the following questions. Each question carries 4 marks.

(Marks : 5 × 4 = 20)

1. (a) List the components of a data communication system.

(b) A network contains four computers if there are only four lengths of cable in this network, which topology is used?

(c) List any four kinds of error which remains undetectable by the checksum.

(d) Name two networks that allow frames to be packed back-to-back. Why is this feature worth having?

(e) Write the net id, host id and subnet id of the IP addresses 117.34.3.8 and 207.3.54.12.

(f) Give three examples of protocol parameters that might be negotiated when a connection is set up in the network layer.

(g) What is the minimum size of the process data that can be encapsulated in UDP datagram?

(h) The maximum payload of a TCP segment is 65,495 bytes. Why was such a strange number chosen?

(i) Specify the type of the protocol that can be used for an application that needs to protect the boundaries of its messages. Justify your answer.

(j) What do you mean by RRSets in secure DNS?

[P.T.O.]

PART – B

Answer ONE full questions from each Unit. Each question carries 12 marks.

(Marks : 5 × 12 = 60)

UNIT - I

2. (a) Explain the various layers present is OSI model and specify their functions.

   (b) Discuss network topologies in detail with their performance indicator. Also draw and show the hybrid topology with star as back bone and four ring networks.

Or

3. (a) Discuss in detail about Wireless LAN's.

   (b) Explain the working principle of Optical fiber transmission media. Show how it works in Mono Mode Step Index.

UNIT – II

4. (a) Identify the contrast between two basic approaches that deals with error transmission in terms of storage and bandwidth requirement.

   (b) Show the operation of go-back-n protocol, when a data packet or ACK is lost. Explain with the help of timing diagram.

Or

5. (a) Data link protocols almost always put the CRC in the trailer rather than the header, why?

   (b) Discuss in detail about satellite networks.

UNIT – III

6. (a) What is the purpose of subnetting? Explain the various types of subnet mask.

   (b) Give brief discussion about the BGP routing protocol with suitable illustration.

Or

7. (a) What is count to infinity problem? Explain in detail about a routing algorithm with an illustration.

   (b) Discuss in detail about IPV6.

UNIT - IV

8. (a) Explain how the packets are transmitted by using TCP approach. Explain in detail with the neat sketch.

   (b) What is Cryptography? Explain Public and Private Keys to be used for Cryptography Mechanism.

Or

9. (a) How Connection is established and terminated in TCP using three way handshaking mechanism? Describe in detail.

   (b) Explain the message authentication operation using RSA Algorithm.

UNIT - V

10. Describe with an example how does HTTP request retrieves the document usr/users/doc/docl. Show the response for

   (a) If the document is moved to usr/deads/docl

   (b) If there is syntax error in the request

Or

11. (a) Explain in brief about the Simple Mail Transfer Protocol.

   (b) Discuss briefly the role of DNS in internet.
