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BTCS302

III Semester Examination, December 2018

B.Tech. / B.Tech. + M.Tech. / B.Tech. + MBA [CCE/CSE-CMC, BDA, CYFS]

Data Communication

Choice Based Credit System (CBCS)

uration: 3 Hrs.

Maximum Marks : 60

Minimum Pass Marks: 24

Note: (1) All questions carry equal marks, out of which part 'A' and 'B' carry 3 marks and part 'C' carries 6 marks.

(2) From each question, part 'A' and 'B' are compulsory and part 'C' has internal choice.

(3) Draw neat diagram, wherever necessary.

(4) Assume suitable data, wherever necessary.

Q.1.(A) Write the three criteria necessary for an effective and efficient network? **03**

(B) Explain in detail TCP/IP protocol suite. **03**

(C) Name the two major categories of transmission media. How do guided media differ from unguided media? **06**

OR

What is the total delay (latency) for a frame of size 5 million bits that is being sent on a link with 10 routers each having a queuing time of 2 μs and a processing time of 1 μs. The length of the link is 2000 Km. The speed of light inside the link is 2×10^8 m/s. The link has a bandwidth of 5 Mbps. Which component of the total delay is dominant? Which one is negligible?

Q.2.(A) What is error detection? List various methods of error detection and explain any two of them in brief. **03**

(B) What is sliding window? Explain Go-back N protocol in detail. **03**

(C) Write short notes on:

a) CSMA/CA

B) CSMA/CD **06**

OR

A system uses the Stop-and-Wait ARQ Protocol. If each packet carries 1000 bits of data, how long does it take to send 1 million bits of data if the distance between the sender and receiver is 5000 Km and the propagation speed is 2×10^8 m? Ignore transmission, waiting, and processing delays. We assume no data or control frame is lost or damaged.

Contd.....

Q.3.(A) What are the differences between classful addressing and classless addressing in IPv4? 03

(B) Differentiate between ARP and RARP? 03

(C) Briefly define subnetting and supernetting with example. How do the subnet mask and supernet mask differ from a default mask in classful addressing? 06

OR

Write short notes on:

a) BOOTP

B) DHCP

Q.4.(A) What is the difference between connectionless and connection-oriented services? 03

(B) Define congestion. Discuss the various methods of preventing and reducing the congestion. 03

(C) Compare the TCP header and the UDP header. List the fields in the TCP header that are missing from UDP header. Give the reason for their absence. 06

OR

Write short notes on:

a) Transmission Control Protocol (TCP)

B) User Datagram Protocol (UDP)

Q.5.(A) What is the difference between local and remote log-in in TELNET? 03

(B) Why do we need POP3 or IMAP4 for electronic mail? 03

(C) Define network management. List five functions of network management. 06

OR

Write short notes on:

a) WWW

B) HTTP

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Total No. of Questions: 05

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BTCS 302

III Semester Examination, May 2018

B.Tech. / B.Tech. + M.Tech. / B.Tech. + MBA [CSE / CCE]

Data Communication

Choice Based Credit System (CBCS)

Duration: 3 Hrs.

Maximum Marks : 60

Minimum Pass Marks: 24

Note (1) All questions carry equal marks, out of which part 'A' and 'B' carry 3 marks and part 'C' carries 6 marks.

(2) From each question, part 'A' and 'B' are compulsory and part 'C' has internal choice.

(3) Draw the neat diagram, wherever necessary.

(4) Assume suitable data, wherever necessary.

Q.1.(A) Identify the five components of a data communication system? Explain each component with a labeled diagram. 03

(B) Differentiate between the half-duplex and full-duplex transmission modes. 03

(C) Explain the working of each layer of the ISO-OSI model? 06

OR

What do you mean by guided and unguided data transmission modes? Describe each types with the help of suitable examples.

Q.2.(A) What do you mean by CSMA protocol? Explain the concept of a CD in the CSMA protocol. 03

(B) What should be the RTT if 1000 Bytes of data frames is to be transmitted over a 1 km channel? Signal travels at the speed of 200 mts./μsec and data transfer rate is 8 Mbps? Where RTT is the Round Trip Time (Sum of transmission time and twice of propagation time of the channel). 03

(C) What do you mean by error correction and detection in the data transmission at the data link layer? Explain with the help of suitable examples. 06

OR

Explain different types of protocols that are working over the Noisy and Noiseless data channels.

Contd.....

Q.3.(A) What do you mean by ARP and RARP? Explain with help of suitable example. 03

(B) What do you mean by IPv4? Describe the classful IP addressing. 03

(C) A block of IP addresses starting with 190.100.0.0/16 is granted to an organization. This organization needs to be distribute these addresses to three groups of customers as follows:

(i) The first group has 64 customers; each needs 256 addresses.

(ii) The second group has 128 customers; each needs 128 addresses.

(iii) The third group has 128 customers; each needs 64 addresses.

Design the sub-blocks distribution, describe the first and last IP address in each group and also find out how many addresses are still available after these allocations. 06

OR

Write Short note on: (i) Data Delivery (ii) Forwarding (iii) BOOTP

Q.4.(A) What do you mean by connection oriented and connectionless services? 03

(B) What do you mean by user datagram protocol (UDP)? Explain its working in brief. 03

(C) What do you mean by SCTP? Describe the labeled diagram of its packet format and, also explain the working of SCTP at transport layer. 06

OR

Differentiate between Transmission control protocol (TCP) and User datagram protocol (UDP)?

Q.5.(A) What do mean by cryptography? Describe the concept encoding and decoding with labeled diagram. 03

(B) Describe the role File transfer protocol (FTP) at the Application layer of OSI Model? 03

(C) What do you mean by Domain name system (DNS)? Explain the hierarchy of DNS with a help of labeled diagram. 06

OR

Write Short note on: (i) WWW (ii) SNMP (iii) HTTP

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BTCS302

III Semester Examination May-June 2019

B.Tech/B.Tech+ M.B.A / B.Tech + M.Tech [CSE/CCE/CSE-CMC/CSE-BDA/CSE-CC/CSE-CYFS]

Data Communication

Choice Based Credit System (CBCS)

Time: 3 Hrs.

Maximum Marks : 60

Minimum Pass Marks: 24

Note: (1) All questions carry equal marks, out of which part 'A' and 'B' carry 3 marks and part 'C' carries 6 marks.
(2) From each question, part 'A' and 'B' are compulsory and part 'C' has internal choice.
(3) Draw the neat diagram, wherever necessary.
(4) Assume suitable data, wherever necessary.

Q.1(A) Discuss various data communication modes with example. 03

(B) Define Protocol & Service. Explain the relationship between protocol & service using examples. 03

(C) Differentiate between Coaxial, Twisted pair & fiber optic cables by three different parameters. 06

OR

Explain the functions of each layer of ISO-OSI Model. Also write the names of devices & protocols associated with each layer.

Q.2(A) Discuss in brief:-

(a) Round Trip Time

(b) Piggybacking

(c) Sliding Window 03

(B) Explain various Retransmission techniques using suitable example. 03

(C) What is Checksum? Explain the working of checksum using following example- 06

10011001 11100010 00100100 10000100

OR

Consider the message T:1010001101

(a) Explain the working of CRC using Generator polynomial $X = X^5+X^4+X^2+1$

(b) Show that how a transmission error (a bit change in T) shall be discovered.

Contd...

Q.3(A) What is DHCP? Compare DHCP with BOOTP & RARP protocols? 03

(B) What are the limitations of IPv4? How they are addressed in IPv6? 03

(C) What do you understand by IP address? Discuss the classful IP addressing in detail. 06

OR

What is subnetting? Calculate the subnets & blocks for following example-

203.230.56.69/29

Q.4(A) Differentiate between TCP & UDP. 03

(B) Draw & explain the TCP Header in brief. 03

(C) What is SCTP? Draw & explain the packet format of SCTP & discuss the services offered by SCTP. 06

OR

The following is a dump of UDP Header-

0632000D001CE217

Answer the following :-

(a) Source & Destination port address

(b) Total Length & Length of Data in UDP Segment

(c) Checksum Value In UDP Header

(d) Considering that an IP packet can have a maximum of total length of 65535 bytes. What is the maximum length of data in a UDP segment within an IP packet?

Q.5(A) Write short note on following-

(a) TELNET 03

(b) SNMP

(B) What is cryptography? Why cryptography is essential in Data Communication? 03

(C) What is DNS? Discuss how DNS provides Name resolution services? 06

OR

What is File transfer Protocol? Explain the process of FTP.

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