

Name :

Roll No. :

Invigilator's Signature :

CS/B.Tech(CSE)/SEM-6/CS-601/2012

2012

COMPUTER NETWORKS

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following : $10 \times 1 = 10$
 - i) An example of full duplex transmission is
 - a) Telephone channel
 - b) Satellite channel
 - c) Broadcast radio
 - d) None of these.
 - ii) The layer handles the creation of data frames.
 - a) Data link
 - b) Network
 - c) Transport
 - d) Physical.
 - iii) Which channel access methods is used in Ethernet networks ?
 - a) Pure ALOHA
 - b) CSMA/CD
 - c) CSMA/CA
 - d) Slotted ALOHA.
 - iv) Which detection method can detect a single bit error ?
 - a) CRC
 - b) Two dimensional parity checks
 - c) Simple parity check
 - d) Previous all.

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[Turn over

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- v) Which class of IP address is reserved for multicast communication ?
- a) Class A b) Class B
c) Class C d) Class D.
- vi) Total bandwidth required for AM is
- a) zero b) $2(1 + d)B$
c) $2B$ d) none of these.
- vii) At which layer circuit switching takes place ?
- a) Transport layer b) Data link layer
c) Physical layer d) None of these.
- viii) The address space of IPV4 is
- a) 0 b) infinite
c) 2^{32} d) none of these.
- ix) How much of channel output of slotted ALOHA will be in comparison to pure ALOHA ?
- a) Same b) Double
c) Three times d) None of these.
- x) For a 4 bit sliding window, sequence number range is
- a) 1 to 16 b) 0 to 7
c) 0 to 15 d) 8 to 15.

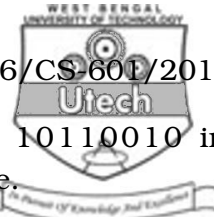
GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. What is Gateways ? Differentiate between hub and Switch.
2 + 3
3. Briefly explain leaky bucket algorithm for congestion control.
4. What are the disadvantages in NRZ encoding ? How RZ encoding solves this problem ?

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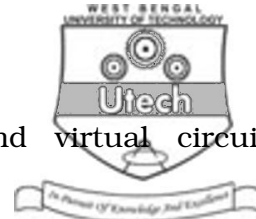


5. a) Sketch the waveform for the bit stream 10110010 in differential Manchester encoding scheme. 3 + 2
- b) Write the difference between bit stuffing and character stuffing. 3 + 2
6. a) Differentiate between Circuit Switching and Packet Switching.
- b) Why is Medium Access Control technique required ? 3 + 2

GROUP – C**(Long Answer Type Questions)**Answer any *three* of the following. 3 × 15 = 45

7. a) Given a 10 bit sequence 1010011110 and a divisor of 1011. Find the CRC.
- b) What is the advantage of two dimensional parity over simple parity ? Explain with suitable example.
- c) Briefly discuss about the different guided media that are used in computer networks and make a comparison among them.
- d) What is TCP/IP reference model ? 5 + 3 + 5 + 2
8. a) Discuss CSMA/CA with the help of a flowchart.
- b) Why is CSMA/CD not implemented in WLAN ?
- c) Describe 802.3 frame formats. Why is padding required ?
- d) Why is acknowledgment numbered in stop and waits protocol ? Discuss the situation when unnumbered acknowledgments can create confusion in the sender and receiver end. 5 + 3 + 3 + 4

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9. a) Differentiate between datagram and virtual circuit packet switching schemes.
- b) Discuss the IEEE 802.5 protocol. Draw the lower two layers of the IEEE 802.5 protocol.
- c) Distinguish between gateway and bridge. What is transparent bridge ? 5 + 5 + 5
10. a) What is distance vector routing protocol ? What is the difference between RIP and EGP ?
- b) Distinguish among the working principles of circuit switching, packet switching and message passing techniques.
- c) What is an autonomous system ? What is the difference between intra autonomous system and inter autonomous system routings ? Give an example of each routing protocol. 5 + 5 + 5
11. a) State the differences between IPV4 and IPV6.
- b) State the difference between static and dynamic routing.
- c) Describe any shortest path algorithm.
- d) Differentiate between ARP and RARP. 4 + 3 + 6 + 2
12. Write short notes on any *three* of the following : 3 × 5
 - a) FTP
 - b) CSMA/CD
 - c) Satellite transmission
 - d) SMTP
 - e) DNS
 - f) QoS in transport layer.
