



Name :
Roll No. :
Invigilator's Signature :

CS / MBA (OLD) / SEM-6 PT / SM-406 / 2011

2011

FUNDAMENTALS OF NETWORKING

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)

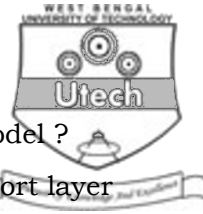
1. Choose the correct alternatives for the following : $10 \times 1 = 10$

i) OSI stands for

- a) Open Systems Interconnection
- b) Operating Systems Interconnection
- c) Open Software Interconnections
- d) Operating Software Interconnection.

ii) Number of connections required in a mesh topology is

- a) $n * (n + 1) / 2$
- b) $n * (n - 1) / 2$
- c) $n (n - 1)$
- d) $2n * (n + 1)$.



- iii) Trailer is added at which layer of OSI model ?
 - a) Physical layer
 - b) Transport layer
 - c) Data link layer
 - d) Network layer.
- iv) Encryption is done at which layer of OSI model ?
 - a) Application layer
 - b) Presentation layer
 - c) Session layer
 - d) Network layer.
- v) Polyalphabetic cipher
 - a) replaces one symbol with another
 - b) replaces different substitutes for a character
 - c) both (a) and (b)
 - d) none of these.
- vi) CSMA stands for
 - a) Carrier Signal Multiple Access
 - b) Collision Signal Meter Access
 - c) Collision Sense Multiple Access
 - d) Carrier Sense Multiple Access.
- vii) Telephone is an example of
 - a) simplex mode
 - b) full duplex mode
 - c) half duplex mode
 - d) only (b) and (c).
- viii) The range of frequencies contained in a composite signal is
 - a) amplitude
 - b) wavelength
 - c) bandwidth
 - d) none of these.
- ix) Which one of the following is not a line coding scheme ?
 - a) Unipolar
 - b) Polar
 - c) Bipolar
 - d) Multi-transmission.



- x) Time Division Multiplexing transfers
- a) analog signal
 - b) digital signal
 - c) both (a) and (b)
 - d) none of these.

GROUP – B

(Short Answer Type Questions)

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

2. Why is flow control needed ? What are three popular ARQ mechanisms ?
3. Name the types of HDLC frames and give a brief description of each.
4. What are the two categories of cryptography methods ? What is the main difference between the categories ? What keys are needed for public key cryptography ? $2 + 2 + 1$
5. What is the purpose of firewalls ? What are the two types of firewalls ? $3 + 2$
6. In a class A subnet, we know the IP address of one of the hosts and the mask as given below :

IP address : 25.34.12.56

Mask : 255.255.0.0

What is the network address ?

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. Explain the following with necessary diagram :
Amplitude Modulation (AM), Frequency Modulation (FM),
Pulse Code Modulation (PCM), Multiplexing.
What are the major advantages of Digital Communication
over Analogue Communication ? $10 + 5$



8. Discuss the different types of Network Topology. What do you mean by Token Bus and Token Ring techniques ? Explain Subnetting and Supernetting with suitable examples.
7 + 3 + 5
9. Draw the representation of digital signal 1001110 for NRZ-L, NRZ-I and Manchester coding waveforms and explain. “Band rate and bps are essentially the same.” Comment on the statement. What are protocols and standards needed in data communications ?
8 + 3 + 4
10. Explain class A, B, C, D and E types of networking in terms of their addressing scheme under IPv4. What are the limitations of IPv4 addressing system ? What are the difficulties in implementation of IPv6 addressing system ?
4 + 2 + 4 + 5
11. What do you mean when we say that a bridge can filter traffic ? Why is filtering important ? How is a repeater different from an amplifier ? What are the basic advantages of a Distributed Database Management System ?
4 + 2 + 4 + 5

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