



Name :

Roll No. :

Invigilator's Signature :

CS/MBA/SEM-4 FT & 6 PT/SM-406/2012

2012

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

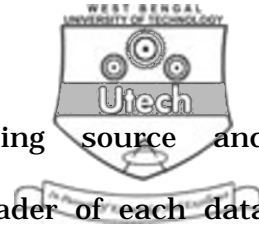
(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following :

10 × 1 = 10

- i) HDLC in stands for
 - a) Hard-Drive Link Control
 - b) High-Density Layer Control
 - c) High Data Level Control
 - d) High Level Data Link Control.

- ii) Which among the following is the current standard for HDLC that replaces all of previous standards ?
 - a) ISO 3309
 - b) ISO 13239
 - c) ISO 4335
 - d) ISO 6256.



iii) Forming data packets and adding source and destination port numbers in the header of each data packet is the function of

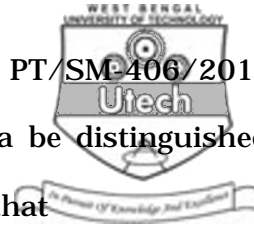
- a) Application Layer
- b) Physical Layer
- c) Data-Link Layer
- d) Transport Layer.

iv) Web conferencing, in which the streams of audio and video must be synchronous to avoid so-called lip-synch problems is an application of

- a) Presentation Layer
- b) Application Layer
- c) Session Layer
- d) Network Layer.

v) The following sub layer(s) of Data Link Layer emulates a full-duplex logical communication channel in a multipoint network

- a) LLC Layer
- b) MAC Layer
- c) both (a) and (b)
- d) none of these.



vi) TDM (time-division multiplexing) can be distinguished from packet mode communication is that

- a) the time-slots are recurrent in a fixed order and pre-allocated to the channels
- b) the time-slots are scheduled on a packet-by-packet basis
- c) both (a) and (b)
- d) none of these.

vii) Sampling and Quantization are the features of

- a) PPM
- b) PAM
- c) PCM
- d) all of these.

viii) Network switches differ from Network Hubs is that

- a) switches can have ports of different speed
- b) hubs can have ports of different speed
- c) both (a) and (b)
- d) none of these.

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ix) The Token Passing mechanism is shared by

- a) ARCNET
- b) Token Bus
- c) FDDI
- d) all of these.

x) The practice of sending unwanted e-mail messages, frequently with commercial content, in large quantities to an indiscriminate set of recipients is known as

- a) E-mail Spam
- b) Unsolicited Bulk Email (UBE)
- c) Junk Mail
- d) all of these.

GROUP - B

(Short Answer Type Questions)

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

2. The period of a signal is 100 ms. What is its frequency in kilohertz ?
3. What is the difference between a port address, a logical address and a physical address ?



4. What are the responsibilities of the transport layer in the internet model ?
5. Explain why most of the addresses in class A are wasted ?
Explain why a medium size or a large size corporation does not want a block of class C addresses ?
6. What are needs and advantages of digital signature ?

GROUP - C

(Long Answer Type Questions)

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

7. a) Find the class of the following IP addresses : 5
 - I. 237.14.2.1
 - II. 208.35.54.12
 - III. 129.14.6.8
 - IV. 114.34.2.8
- b) An organization is granted the block 211.17.180.0/24.
The administrator wants to create 32 subnets. 10
 - i) Find the subnet mask
 - ii) Find the number of addresses in each subnet
 - iii) Find the first and the last address in subnet 1
 - iv) Find the first and the last address in subnet 32.

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8. a) Define analog transmission. 3
- b) Define carrier signal and its role in analog transmission. 5
- c) Distinguish between a signal element and data element. 5
- d) Express a period of 100 ms in microseconds. 2
9. a) For n devices in network what is the number of cable link required for a mesh, ring, bus and star topology ? 5
- b) What are the responsibilities of the network layer in the internet model ? 4
- c) What is a peer-to-peer-process ? 2
- d) What are the advantages of a multipoint connection over a point to point connection ? 4
10. a) What is the difference between session and connection in SSL ? 5
- b) Why does IPsec need a security association ? 5
- c) Discuss RSA algorithm. 5



11. Write short notes on any *three* of the following : 3 × 5

- a) ALOHA
- b) OSI layers
- c) Pulse code modulation
- d) Digital signature
- e) Cryptography.

