	Utech
Name:	A
Roll No.:	Charles of Familia and Explana
Invigilator's Signature :	

CS/M.Tech(ECE)/SEM-1/MCE-105A/2011-12 2011

COMPUTER COMMUNICATION AND 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.

Question No. 1 compulsory and answer any four from the rest.

- a) Draw a hybrid topology with a star backbone and fourring networks.
 - b) When a party markes a local telephone call to another party, is this a point-to-point or multipoint connection?

 Explain.
 - c) What is the maximum number of characters or symbols that can be represented by unicode? 2
 - d) What are the concerns of the P.L. in the internet model?

40045 [Turn over

CS/M.Tech(ECE)/SEM-1/MCE-105A/2011-12

- e) What is the difference between a port address, a logical address and a physical address?
- f) What is the purpose of cladding in an optical fibre? 2
- g) Name the advantages of optical fibre over twisted pair and coaxial cable.
- 2. a) How are OSI and ISO related to each other?
 - b) Suppose a computer sends a packet at the network layer to another computer, somewhere in the internet.

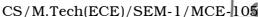
 The logical destination address of the packet is corrupted. What happens, to the packet? How can the source computer be informed of the siluation?
 - c) There are several transport layer models in the OSI model. Find all of them. Explain the difference between them.
- 3. a) Describe the need for switching and define a switch.

3 + 2

3

- b) List four major components of a packet switch and their functions. 2+4
- c) Define blocking in a switched network.

40045





4. a) What is dial-up modem technology?

- 3
- b) Discuss the concept of redundancy in error detection and correction.
- c) What is the Hamming distance? What is the minimum Hamming distance? 2+2
- d) Which of the following CRC generators guarantee the detection of a single bit error ?
 - i) $x^4 + x^2$
 - ii) $x^3 + x + 1$
 - iii) $x^2 + 1$
 - iv) 1. 3
- 5. a) Compare and contrast flow control with error control. 3
 - b) Compare and contrast the Go-Back-N ARQ protocol with Selective-Repeat ARQ.
 - c) Briefly describe the services provided by the data link layer.
 - d) Define random access and list three protocols in this category.

40045

3

[Turn over

CS/M.Tech(ECE)/SEM-1/MCE-105A/2011-12

6.	a)	Can you explain why the vulnerable time in ALOHA
		depends on T_{Fr} , but in CSMA depends on T_{P} ?

- b) What are the advantages of dividing an Ethernet LAN with a bridge?
- c) An Ethernet MAC sublayer receives 38 bytes of data from the upper layer. How many bytes of padding must be added to the data?
- 7. a) What are the two types of links between a Bluetooth primary and a Bluetooth secondary?
 - b) Compare and contrast CSMA/CD with CSMA/CA. 4
 - c) Given a fragmented data gram (in IPv4) with an offset of 120. How can you determine the first and last byte numbers?

40045 4