	Utech
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Invigilator's Signature :	

# CS/MBA(NEW)/SEM-4(FT)/SM-406/2010 2010

## **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:

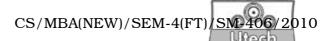
 $10 \times 1 = 10$ 

- i) Transmission media are usually categorized asa) fixed or unfixedb) guided or unguided
  - c) determinate or indeterminate
  - d) metallic or non-metallic.
- - a) physical
- b) network
- c) transport
- d) application.

25024 (MBA) [ Turn over

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	•	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		Utech	
iii)	BNC connectors are used by cable			cables.	
	a)	UTP	b)	STP (A Annual 19 Exercising and Exercising	
	c)	Coaxial	d)	Fiber-optic.	
iv)	In a	Go-Back-N ARQ, if th	ie wii	ndow size is 63, what is	
	the range of sequence number?				
	a)	0 to 62	b)	0 to 64	
	c)	1 to 63	d)	1 to 64.	
v)	Flov	v control is needed to p	orever	nt	
	a)	bit errors			
	b)	overflow of the sender	r buf	fer	
	c) overflow of the receiver buffer				
	d)	collision between sen	der a	nd receiver.	
vi)	In Go-Bakc-N ARQ, if frames 4, 5 and 6 are received				
		successfully, the receiver may send an ACK			
		ne sender.	• .		
	a)	5	b)	6	
	c)	7	d)	none of these.	
vii)	ARQ stands for				
	<ul><li>a) Automatic Repeat Quantization</li><li>b) Automatic Repeat Request</li><li>c) Automatic Retransmission Request</li></ul>				
	d)	None of these.			
viii)	HDI	C is an acronym for			
	a)	High-duplex line comm	nunic	ation	
	b)	High level data link co	ntrol		
	c) Half duplex digital link combination				
	d)	Host double level circ	uit.		



- ix) The address field of a frame in HDLC protocol contains the address of the ...... station.
  - a) primary
- b) secondary
- c) tertiary
- d) none of these.
- x) What is present in all HDLC control fields?
  - a) P/F bit
- b) N(R)

c) N(S)

d) Code bits.

#### GROUP - B

#### (Short Answer Type Questions)

Answer any *three* of the following.

 $3 \times 5 = 15$ 

- 2. Compare OSI and TCP reference models.
- 3. What are the advantages of IPv6 over IPv4?
- 4. Explain simplex, half-duplex & full-duplex mode of communication.
- 5. Define Repeater, Bridge, Router & Gateway.
- 6. What is FDM? How is it different from TDM?

#### GROUP - C

## (Long Answer Type Questions)

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

- 7. a) Describe the characteristics of mobile computing. How is it different from WAN?
  - b) Explain in brief the Wireless Application Protocol. 9 + 6

25024 (MBA)

3

[ Turn over

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- 8. a) Write a note on the OSI reference model.
  - b) Encode the following binary string using differential Manchester encoding scheme :

#### 10011101011.

- c) What do you understand by Inverse Multiplexing?
- d) Write a short note on Data Link Layer. 8 + 2 + 2 + 3
- 9. a) Explain various classes of IP address.
  - b) Find the class, netid and hostid for each address:
    - i) 4.23.145.90
    - ii) 246.7.3.8
    - iii) 129.6.8.4
    - iv) 227.34.78.7
    - v) 198.76.9.23.
  - c) What is sub-netting and why is it required? 5 + 5 + 5
- 10. a) Explain the OSI reference model.
  - b) Compare the OSI model with TCP/IP reference model.

9 + 6

- 11. a) Draw the representation of digital signal 1001110 for NRZ-L, NRZ-I and Manchester coding waveforms and explain.
  - b) Comment on the statement "Baud rate and bps are essentially the same".
  - c) Why are protocols and standards needed in data communications? 7 + 4 + 4