

[Contd...]

1

110601]

[17825]

4

- (a) Differentiate between Bit rate and baud rate. A modem connects connected in mesh, ring, bus and star topology?
(b) What are the number of cable links required for a transmission rate is 10 kbps.
(c) Calculate the required Bandwidth, if in a communication channel the signal power is 10 W, and the information SNR required to accomplish this?
(d) It is required to transmit a data at a rate of 64 kbps over a 3 kHz telephone channel. What is the minimum model
(e) What do you mean by service primitives?
(f) Discuss the services of each layer of OSI reference

1 ATTEMPT ANY FOUR : (5x4=20)

NOTE: ATTEMPT ALL QUESTIONS.
Time : 3 Hours [Total Marks : 100]

**COMPUTER NETWORK
(SEM. VI) THEORY EXAMINATION, 2014-15****B. Tech.**

Roll No. :	[10x2=20]
(Following Paper ID and Roll No. to be filled in your Answer Book)	
PAPER ID : 110601	

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2

ATTEMPT ANY FOUR : (5x4=20)

- (a) Given a 10-bit sequence 1010011110 and a divisor of 1011. Find the CRC. Check your answer.

- (b) Answer the following :

- (i) A pure Aloha network transmits 200 bit frames on shared channel of 200 kbps. What is the throughput put if the system (all station together) produces 250 frames per second?

- (ii) How can you compare pure Aloha and slotted Aloha?

- (c) Discriminate between the send window and receive window for link and how are they related with-

- (i) A selective repeat retransmission scheme

- (ii) A go-back-N control scheme

- (d) Discuss different carrier sense protocols. How are they different than collision protocols?

- (e) Sketch the Manchester and differential Manchester encoding for the bit stream: 0001110101

- (f) Discuss the different physical layer transmission media.

3

ATTEMPT ANY TWO : (10x2=20)

- (a) Write short notes on following:

- (i) Stop and wait ARQ
 (ii) Sliding Window Protocol
 (iii) Go-Back N ARQ
 (iv) Collision Avoidance

- (b) Perform the subnetting of the following IP address

160.11.X.X. Original subnet mask 255.255.0.0 and Number of subnet 6 (six)

- (c) What is the transmission time of a packet sent by a station if the length of the packet is 2 million bytes and the bandwidth of the channel is 300 kbps?

4 ATTEMPT ANY TWO : (10x2=20)

- (a) Draw the diagram of TCP header and explain the use of the following:

- (i) Source and destination port addresses

- (ii) Sequence and acknowledgement numbers

- (iii) Code bits

- (iv) Window size

- (v) Urgent pointer

- (D) Describe the role of checksum field and option pad bytes.

- (b) Answer the following:

- (i) Differentiate between the block cipher with transposition cipher.

- (ii) Using the RSA public key cryptosystem with $a=1$, $b=2$ etc.

- (I) If $p=7$ and $q=11$, list five legal values for d.

- (II) If $p=13$ and $q=31$ and $d=7$, find e.

(c) Discuss:

- (i) Different steps of JPEG compression standard.
- (ii) The RPC design and implementation issues.

5 ATTEMPT ANY TWO : (10×2=20)

- (a) Explain the SMTP can handle transfer of videos and images? Also explain the advantages of IMAP 4 over POP 3 mail access protocols.
- (b) What is the difference between an active web document and dynamic web page? Also explain the role of CGI.
- (c) (i) Compare and contrast TCP with RTP. Are both doing the same things?
(ii) What are the problems for full implementation of voice over IP? Did you think we will stop using the telephone network very soon?

Printed Pages : 4

(Following Paper ID and Roll

PAPER ID : 110601**Roll No.** **B.****(SEM. VI) THEORY COMPUT**

Time : 3 Hours]

NOTE: ATTEMPT ALL QU

1 ATTEMPT ANY FOUR

- (a) Differentiate between constellation diagram (1,1), (1,-1), (-1,1) and (-1,-1). State two reasons why a modem with the above four constellations is better than a modem with the standard four constellations.
- (b) What are the number of devices connected to a single bus?
- (c) Calculate the required SNR for a channel if the signal transmission rate is 1000 bps.
- (d) It is required to transmit a signal over a 3 kHz telegraph channel. What is the minimum SNR required to achieve a bit error rate of 10^-6?
- (e) What do you mean by a convolutional code? Discuss the service model.
- (f) Discuss the service model.

110601]

4

[17825]

110601]

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