Printed Pages : 4

ECS601

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 110601

Roll No.

B. Tech.

(SEM. VI) THEORY EXAMINATION, 2014-15

COMPUTER NETWORK

Time : **3** Hours] [Total Marks : **100**

NOTE: ATTEMPT ALL QUESTIONS.

1 ATTEMPT ANY **FOUR** : **(5×4=20)**

(a) Differentiate between Bit rate and baud rate. A modem constellation diagram has data point at coordinates: (1,1), (1,-1), (-1,1) and (-1,-1). How many bps can a modem with these parameters achieve at 1200 baud? State two reason for using layered protocols.

(b) What are the number of cable links required for n devices connected in mesh, ring, bus and star topology?

(c) Calculate the required Bandwidth, if in a communication channel the signal power is 10 W, and the information transmission rate is 10kbps.

(d) It is required to transmit a data at a rate of 64 kbps over a 3 kHz telephone channel. What is the minimum SNR required to accomplish this?

(e) What do you mean by service primitives?

(f) Discuss the services of each layer of OSI reference model.

2 ATTEMPT ANY **FOUR** : **(5×4=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 through 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** : **(10×2=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** : **(10×2=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

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?