

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

PAPER ID : 2897

Roll No.

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B.Tech.

(SEM. VIII) EVEN THEORY EXAMINATION 2012-13

DATA COMMUNICATION NETWORKS

Time : 3 Hours

Total Marks : 100

Note :- (1) All questions carry equal marks.

(2) Attempt all questions.

1. Attempt any **four** of the following : (5×4=20)
 - (a) Discuss salient features of OSI reference model.
 - (b) Distinguish between signal element and a data element.
 - (c) What do you understand by de jure and de facto standard ?
 - (d) What are the limitations of EIA RS-232 C and in which configuration it is removed.
 - (e) Why do we use Layered protocol. Give at least two reasons.
 - (f) What are the various LAN topologies ? Explain in brief with figures.
2. Attempt any **four** of the following : (5×4=20)
 - (a) What is the mechanism of stop-and-wait ARQ error control ?
 - (b) Define and explain the data link layer in IEEE project 802.
Why is this layer divided into sub layers ?

- (c) What is the difference between pure ALOHA and slotted ALOHA ?
- (d) Calculate CRC for the 10 bit sequence 1010011110. Where the generator polynomial is $x^3 + x + 1$.
- (e) Compare and contrast byte-stuffing and bit stuffing. Which technique is used in byte oriented protocol ?
- (f) Briefly describe the services provided by data link layer.
3. Attempt any **four** of the following : (5×4=20)
- (a) Explain in detail the Dijkstra's algorithm for shortest path with the help of suitable diagram.
- (b) Define classless inter domain routing.
- (c) Describe the characteristics of a layer 3 switch.
- (d) What are the differences between a router and gateway.
- (e) Compare and describe different generations of Ethernet used in wired lan.
- (f) What do you understand with congestion ? Explain Leaky bucket algorithm.
4. Attempt any **two** of the following : (10×2=20)
- (a) What is the difference between networking and internetworking connectivity devices ? Explain with example in detail.
- (b) Describe ATM protocol layers and compare them to the OSI protocol hierarchy.
- (c) List and describe the five basic data communications network topologies.

5. Attempt any **two** of the following : (10×2=20)
- (a) What do you understand with TCP and UDP ? Explain.
- (b) Describe the operations of DHCP. Also explain the meaning and the purpose of DNS in detail.
- (c) (i) Compare the salient features of HTTP and FTP.
(ii) Differentiate between TFTP and SMTP.