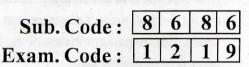
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PGDCA 1st Semester 1128

DATA COMMUNICATIONS AND NETWORKS Paper-PGD-1104

Time Allowed : Three Hours]

[Maximum Marks: 60

Note :- Attempt five questions in all, including Question No. 1 in Section A, which is compulsory and taking one each from Section B to Section E.

SECTION-A

(Compulsory Question)

- 1. (a) What is Analog to Digital signal conversion?
 - Explain the fundamental difference between a Service and (b) a Protocol.
 - What are the advantages and disadvantages of connection-(c) oriented and connectionless protocols respectively?
 - (d) What is the difference between packet and circuit switching?
 - (e) What is high level data link protocol?
 - What is internet bandwidth? 6×2=12 (f)

SECTION-B

2. What is network topology? Explain different network topologies with example and compare them with each other. 12

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[Turn over

 Describe the OSI seven layer model. Name each of the layer- in the model and draw a diagram that shows the ordering of these layers. Write a paragraph describing the areas of function that each layer is responsible for.

SECTION-C

- 4. Classify various types of transmission media for data communication and explain any two of them in detail. 12
- What is modulation ? Explain Amplitude Modulation (AM), Frequency Modulation (FM) and Phase Modulation (PM) with examples.
 12

SECTION-D

- What are error detecting and correcting codes ? What is the utility of Hamming distance in error detection and correction ? Explain with a suitable example.
 12
- (a) Compare the Go-Back-N ARQ protocol with Selective-Repeat ARQ.
 - (b) A network with bandwidth of 10 Mbps can pass only an average of 12000 frames/minute with each frame carrying an average of 10000 bits. What is throughput of this network? 6,6

SECTION-E

- Give an overview of the distance vector method of updating routing table information. In particular, explain using an example how information about a node failure propagates using this algorithm.
 12
- Describe the token bucket mechanism for congestion control. What problems in the simpler approach are addressed by using a token bucket mechanism? Explain with an example. 12

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