

**B.SC. (I. T.) SEM. - III (CBCS - 2015 COURSE) : WINTER -
2017
SUBJECT: DATA NETWORKS**

Day: **Friday**
Date: **15/12/2017**

Time: **10.00 A.M. TO 01.00 P.M.**
Max. Marks: 60

W-2017-0849

N.B.:

- 1) Attempt any **SIX** full questions.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Draw neat and labelled diagrams **WHEREVER** necessary.
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- Q.1** Draw the OSI reference model and explain the functions of different layers. (10)
- Q.2** a) State the various design issues for the data link layer. (05)
- b) A channel has a bit rate of 4 kbps and propagation delay of 20ms. For what range of frame size does stop and wait protocol gives an efficiency of at least 50 percent. (05)
- Q.3** Compare IEEE 802.3, IEEE 802.4 and IEEE 802.5 standards. (10)
- Q.4** A computer on 6 Mbps network is regulated by token bucket. The token bucket is filled at a rate of 1Mbps. It is initially filled to capacity with 8 megabits. How long can the computer transmit at the full 6 Mbps? (10)
- Q.5** a) Why is ARP request broadcast but ARP reply unicast? (05)
- b) Write short note on ICMP. (05)
- Q.6** Explain how TCP connections are established using the three way handshake. What happens when two hosts simultaneously try to establish a connection? (10)
- Q.7** a) Explain DHCP with its state transition diagram. (05)
- b) Compare HUB and SWITCH with the help of suitable block diagram. (05)
- Q.8** Explain how mobile IP provides users the freedom to roam beyond their home subnet while consistently maintaining their home IP address. (10)

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