

B.SC. (I. T.) SEM. - III (2011 COURSE) : SUMMER - 2018

SUBJECT: COMPUTER NETWORKS

Day: **Thursday**
Date: **17/05/2018**

Time: **02.30 pm to 04.30 pm**
Max Marks: **40**

S-2018-0977

N.B.:

- 1) Answer **ANY FIVE** full questions out of **SEVEN**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Draw neat, labeled diagrams **WHEREVER** necessary.
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- Q.1** a) Briefly explain the concepts of circuit switching, packet switching and message switching? Give one example of each, where they are used? **(06)**
- b) Describe the various causes of errors in a computer network? **(02)**
- Q.2** a) List and describe the functions of MAC and LLC layers? **(04)**
- b) Assume 5 devices are connected in a mesh topology. How many cables will be needed to connect each device with all other devices in this topology? How many connection ports will be needed in each device? Also briefly differentiate between Star and Mesh topologies? **(04)**
- Q.3** a) List the functions of the presentation layer in the OSI model? Which layer is responsible for these functions in the TCP / IP model? Give suitable examples. **(04)**
- b) Explain the Sliding Window Protocol and its usage? **(04)**
- Q.4** Compare and contrast Distance-Vector and Link-State Routing protocols? Describe one example of any one of above. **(08)**
- Q.5** Explain the 3- way handshake mechanism for connection establishment and termination in TCP? Draw neat, labeled diagram to illustrate your answer. **(08)**
- Q.6** a) Define – Modulation? Briefly explain Any Two requirements of modulation? **(02)**
- b) An educational institution is given an IP address block 172.16.0.0 / 22. The institution network administrator needs to divide the address space among 4 labs with 120 PCs in each lab.
Give the Subnet Mask, Network IP, and Broadcast IP for each lab network.
How many more labs can be supported as per the given address block? **(06)**
- Q.7** Write Short Notes on Any **TWO** of the following: **(08)**
- a) VLAN
 - b) ICMP
 - c) DNS

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