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T. Y. B. TECH. (COMPUTER ENGINEERING/INFORMATION TECHNOLOGY)
(SEMESTER - I)

COURSE NAME: COMPUTER NETWORKS

COURSE CODE: CSUA31171/ITUA31171

(PATTERN 2017)

Time: [2 Hours]

[Max. Marks: 50]

Instructions to candidates:

- 1) Answer Q.1, Q.2, Q.3, Q.4, Q.5 OR Q.6, Q.7 OR Q.8
- 2) Figures to the right indicate full marks.
- 3) Use of scientific calculator is allowed
- 4) Use suitable data where ever required

Q.1) a) Explain why port addresses and specific addresses are much [6]
needed in communication.

OR

b) How rules or protocols ensure the message to be successfully [6]
delivered and understood at destination?

Q.2) a) Build a simple network for any organization using appropriate [6]
media.

OR

b) Explain how a switch builds its MAC address table and forwards [6]
the frame.

Q.3) a) Calculate the following for 192.168.10.0/24 [6]
1. First host address of the 10th subnet.
2. Broadcast address of 20th subnet
3. Last host address of 5th subnet
4. Broadcast address of 15th subnet

OR

b) Calculate the following for 10.1.1.0/8 [6]
1. First host address of the 10th subnet.
2. Broadcast address of 5th subnet
3. Last host address of 5th subnet
4. Broadcast address of 15th subnet

Q.4) a) Draw and explain the TCP header format. [4]

OR

b) Enlist and explain any two application layer protocols in brief. [4]

Q.5) a) How to configure basic settings on a router for routing between two directly-connected networks using CLI. [6]

b) Describe the primary functions and features of router. [4]

c) Explain how a router builds a routing table using static routes. [4]

OR

Q.6) a) Explain the encapsulation and de-encapsulation process used by routers when switching packets between interfaces. [6]

b) Explain any two dynamic routing protocols. [4]

c) Explain how a router builds a routing table of directly connected networks. [4]

Q.7) a) Explain the steps for VLAN troubleshooting and trunk configuration in a switched network. [6]

b) Compare- A collision domain and a broadcast [4]

c) Describe the two options for configuring inter VLAN routing [4]

OR

Q.8) a) Explain how a switch forwards frames based on VLAN configuration in a multi-switch environment [6]

b) Explain how NAT provides IPv4 address scalability [4]

c) Mention the steps to configure static NAT and dynamic NAT. [4]