

**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,
LONERE - RAIGAD -402 103
Summer Semester Examination, May - 2018**

Branch: M.Tech (CE / CSE / CS / CS&IT)

Semester: I

Subject with Subject Code: Advanced Computer Networks
[MTCE1103]

Marks: 60

Date: 04 / 05 / 2018

Time: 3 Hrs.

Instructions to the Students

1. Each question carries 12 marks.
2. Attempt **any five** questions of the following.
3. Illustrate your answers with neat sketches, diagram etc., wherever necessary.
4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly

Q. 1.

- a) Explain TCP/IP reference model. (06)
- b) What is the need of DHCP? Explain the working of DHCPDISCOVER. (06)

OR

- b) What are the key functions of X.25 and what limitation of X.25 is overcome in Frame Relay. (06)

Q. 2.

- a) Explain in detail SONET frame structure with its bit rate. (06)
- b) Assume that a SONET receiver resynchronizes its clock whenever a 1 bit appears; otherwise, the receiver samples the signal in the middle of what it believes is the bit's time slot.
- (i) What relative accuracy of the sender's and receiver's clocks is required in order to receive correctly 48 zero bytes (one ATM cell's worth) in a row?
 - (ii) Consider a forwarding station A on a SONET STS-1 line, receiving frames from the downstream end B and retransmitting them upstream. What relative accuracy of A's and B's clocks is required to keep A from accumulating more than one extra frame per minute? (06)

OR

b) A stream of data is being carried by STS-1 frames. If the data rate of the stream is 49.540 Mbps, how many STS-1 frames per second must let their H3 bytes carry data? (06)

Q. 3.

a) Explain the key nodes in the optical network. (06)

b) How Optical System was Evolved. (06)

Q. 4.

a) Explain the basic components of fiber optic system. (06)

b) Explain the distribution of timing using SONET and DS1. (06)

Q. 5.

a) Differentiate CWDM with DWDM. (06)

b) Explain WDM networks elements. (06)

Q. 6.

a) How to protect point-to-point link in Optical Network. (06)

b) How does MPLS and GMPLS work. (06)