Shirpur Education Society's
R. C. PATEL INSTITUTE OF TECHNOLOGY, SHIRPUR
An Autonomous Institute
(Affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere)
आर. सी. पटेल इन्स्टिट्यूट ऑफ टेक्नॉलॉजी, शिरपूर
(स्वायत्त महाविद्यालय)

Academic Year (2021-22)
Year: 2 Semester: IV

Program: B. Tech. (Computer Engg.) **Max. Marks: 75**
Subject: Computer Networks (PCC04050T) **Time: 10:30 am to 1:30 pm**
Date: 08/10/2022 **Duration: 3 Hours**

RE ESE EVEN SEM -IV EXAMINATION

Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover page of the Answer Book, which is provided for their use.

(1) This question paper contains 02 pages.
(2) All Questions are Compulsory.
(3) All questions carry equal marks.
(4) Answer to each new question is to be started on a fresh page.
(5) Figures in the brackets on the right indicate full marks.
(6) Assume suitable data wherever required, but justify it.
(7) Draw the neat labelled diagrams, wherever necessary.

Question No.		Max. Marks
Q1 (a)	Explain TCP/IP reference model **OR** i. What are the service primitives for implementing a simple connection-oriented service? ii. What is a protocol? Explain the Network Software Protocol Hierarchies.	[05] [02] [03]
Q1 (b)	What are the three major classes of guided media? Explain.	[10]
Q2 (a)	i. Explain the Bluetooth Architecture. ii. Name the advantages of optical fiber over twisted-pair and coaxial cable. **OR** What is framing? Explain the methods of framing.	[06] [04] [10]
Q2 (b)	Discuss the services provided by data link layer to the network layer.	[05]
Q3 (a)	Draw and Explain the Point-to-Point Protocol (PPP) frame format. **OR** Write short note on Go Back N Sliding Window protocol.	[05] [05]
Q3 (b)	A bit stream 10011101 is transmitted using the standard CRC method. The generator polynomial is x^3+1. What is the actual bit string transmitted? Suppose the third bit from the left is inverted during transmission. How will receiver detect this error? **OR** Explain the High-level Data Link Control (HDLC) Protocol in detail.	[10] [10]

Q4 (a)	An IPv4 datagram has arrived with the following information in the header (in hexadecimal): Ox45 00 00 54 00 03 58 50 20 06 00 00 7C 4E 03 02 B4 0E 0F 02 a. Is the packet corrupted? b. Are there any options? c. Is the packet fragmented? d. What is the size of the data? e. How many more routers can the packet travel to? f. What is the identification number of the packet? g. What is the type of service? **OR** i. Explain the fields related to fragmentation in IPv4 datagram. ii. What is Address Depletion? Discuss classless addressing.	[08] [04] [04]
Q4 (b)	How routing tables are built in Link State Routing? Explain.	[07]
Q5 (a)	The following is a dump of a TCP header in hexadecimal format. 05320017 00000001 00000000 500207FF 00000000 a. What is the source port number? b. What is the destination port number? c. What the sequence number? d. What is the acknowledgment number? e. What is the length of the header? f. What is the type of the segment? g. What is the window size? **OR** What is UDP? Draw and explain the UDP datagram format.	[08] [08]
Q5 (b)	Explain the SMTP Mail Transfer Phases in detail.	[07]

All the Best!