

**JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT**  
**TEST-2 EXAMINATION- April -2018**  
**B.Tech VI Semester (CSE & IT)**

COURSE CODE: 10B11CI611  
COURSE NAME: Computer Networks  
COURSE CREDITS: 04

MAX. MARKS: 25

MAX. TIME: 1:30 HRS

**Note:** All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

**Ques 1 [2+3 = 5 Marks]** Explain the single bit error correction method with suitable example? A bit stream 110101010 is transmitted using the standard CRC method described in the text. The generator polynomial is  $x^4 + x^2 + 1$ . Show the actual bit string transmitted. Suppose the 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> bit from the left is inverted during transmission. Show that this error is detected at the receiver's end.

**Ques 2 [1 + 4 = 5 Marks]** Explain the reason for moving from the Stop-and-Wait ARQ Protocol to the Go-back N ARQ Protocol. Further, design a bidirectional algorithm for Go-Back-N Protocol with suitable diagram

**Ques 3 [2+3 = 5 Marks]** Explain the algorithmic steps for CSMA/CA method with suitable flowchart. Consider building a CSMA/CD network running at 1 Gbps over a 1-km cable with no repeaters. The signal speed in the cable is 200,000 km/sec. What is the minimum frame size?

**Ques 4 [2.5+2.5 = 5 Marks]** Write the difference between IPv4 datagram with IPv6 with suitable diagram. A large number of consecutive IP address are available starting at 198.16.0.0. Suppose that four organizations, x, y, z, and t, request 4000, 2000, 4000, and 8000 addresses, respectively, and in that order. For each of these, Design the sub-blocks and give the first IP address assigned, the last IP address assigned, and the slash notation for each sub-block. Further, determine how many addresses are still available after these allocations.

**Ques 5 [2.5+2.5 = 5 Marks]** Write the difference between following with suitable diagram (s)

(a) HDLC and PPP

(b) Computer networks and distributed system