**University of Asia Pacific**

**Department of Computer Science and Engineering**

**Class Test-03 Spring-2020**

**Program: BSc in Computer Science and Engineering**

**Course Title:** Data Communications **Course No.:** CSE 303 **Credit:** 3.00 **Time:** 20 minutes. **Full Mark:** 20

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| 1. | Suppose you are in a system where it uses different scrambling schemes in different scenarios. For example: if you ID is odd it uses HDB3 and if it is even then the system uses B8ZS technique.  Now implement the above-mentioned scrambling technique for the following data elements: 11100000000110000000000. Assume that the last non-zero signal level has been positive.  How it handles the problem of DC Component and why is it suitable for long range of communication? Explain. | **6**  **6** |
| 2. | We want to transmit 1000 characters with each character encoded as 8 bits. a. Find the number of transmitted bits for synchronous transmission.  b. Find the number of transmitted bits for asynchronous transmission. c. Find the redundancy percent in each case. | **8** |