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**Main Objective of this Paper:** This paper helps to achieve new insights from various perspectives. It sheds light even on various aspects of the course and increases our hunger for knowledge. It is wise to say it contributes a lot in respects to the holistic development of every student.

**Topics Covered and Assignment Provided:** We have managed to gain a comprehensive knowledge on this following topic:

1. **Transmission Impairment:** Transmission impairment refers to the degradation of signal quality during data transmission. It occurs due to factors like attenuation, distortion, and noise. These effects may cause data errors or loss of information. It reduces the efficiency and reliability of communication.
2. **Transmission Media:** Transmission media is the physical or wireless path through which data travels from sender to receiver. It can be guided (*twisted pair, coaxial, fiber optic*) or unguided (*radio waves, microwave, satellite*). The choice of medium affects speed, distance, and signal quality. It is essential for data communication.
3. **Data V/S Signal:** Data is the information that needs to be transmitted, such as text, audio, or video. A signal is the physical representation of data used for transmission through a medium. Data is converted into signals before transmission and reconstructed at the receiving end. Signals can be analog or digital.
4. **Encoding Scheme:** An encoding scheme is a method used to convert digital data into signals suitable for transmission. It defines how bits (*0s and 1s*) are represented as electrical or optical signals. Encoding helps maintain synchronization and reduces transmission errors. Examples include NRZ and Manchester encoding.

To gain better insights on each topic of the study, an assignment is provided to us. It is evaluated in a convincing manner by letting us to clarify all our doubts and achieve due momentum on this subject.

**Outcome of the Subject:** This paper benefits us a lot in every aspect. Moreover, it makes us inclined to understand what our career demands. It is better to acknowledge that this paper abridges the gap between the academic world and professional life. In a nutshell, it reinstates a balance in our life by bringing equilibrium to succeed in the long run professionally.