

COURSE CODE(CREDITS): 19B1WEC836 (3)

MAX. MARKS: 15

COURSE NAME: Applied Medical Signal Processing

COURSE INSTRUCTORS: Dr. Nishant Jain

MAX. TIME: 1 Hour

Note: (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems.

1. Explain the essential components of a man-instrumentation system used in healthcare, focusing on how these elements work together to monitor patient vital signs, process data accurately, and facilitate effective diagnosis and treatment.

[4, CO1]
2. How are biomedical signals produced within the human body? Identify and describe three different biomedical signals that can be obtained from the human body.

[4, CO1]
3. Please discuss the different constraints involved in designing medical instruments, including technical, safety, regulatory, ethical, and economic considerations, and explain how these factors impact the development, functionality, and usability of such devices to ensure they meet clinical standards and patient safety requirements.

[4, CO1]
4. Explain the differences between active and passive transducers, including how each type operates, their energy sources, typical applications, advantages, and limitations?

[3, CO1]