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(AN AUTONOMOUS INSTITUTION)
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**DEPARTMENT OF BIOMEDICAL
ENGINEERING**

**19BMB302- BIOMEDICAL SIGNAL
PROCESSING
III B.E. BME / V SEMESTER**

Two Marks with Answers

Academic Year : 2022-2023 (Odd Semester)

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UNIT IV- BIOSIGNALS AND THEIR CHARACTERISTICS

1. List the different uses of bioelectric potentials.

The bioelectric potential across a cell membrane is typically about 50 millivolts; this potential is known as the resting potential. All cells use their bioelectric potentials to assist or control metabolic processes, but some cells make specialized use of bioelectric potentials and currents for distinctive physiological functions. Examples of such uses are found in nerve and muscle cells.

2. Summarize any four clinical applications of biomedical signals processing.

EEG

EMG

ECG

EKG

3. What is the necessary of data reduction?

Data reduction is a capacity optimization technique in which data is reduced to its simplest possible form to free up capacity on a storage device. There are many ways to reduce data, but the idea is very simple—squeeze as much data into physical storage as possible to maximize capacity

4. What are the characteristics of biosignals?

Biosignals can be classified according to various characteristics: It is the shape of a signal. The waveform represents the variation of a voltage or current of a signal over time in graph They are the changes in the signals according to time . Defined over a continuum of time or space and are described by continuous variable functions.

5 What are sample synchronized biosignals from a human subject?

Sample synchronized biosignals from a human subject. A biosignal is any signal in living beings that can be continually measured and monitored. The term biosignal is often used to refer to bioelectrical signals, but it may refer to both electrical and non-electrical signals.

6. What are non-electrical biosignals?

Non-electrical biosignals: Thermography and pH for example. These ones, the energy source for measurement is not the patient e.g. wrist oximeter.

7. What are biological signals?

Biological signals, or biosignals, are space, time, or space–time records of a biological event such as a beating heart or a contracting muscle. The electrical, chemical, and mechanical activity that occurs during these biological event often produces signals that can be measured and analyzed.

8. What are biosignals?

Biosignals may also refer to any non-electrical signal that is capable of being monitored from biological beings, such as mechanical signals (e.g. the mechanomyogram or MMG), acoustic signals (e.g. phonetic and non-phonetic utterances, breathing), chemical signals (e.g. pH, oxygenation) and optical signals (e.g. movements).

9. What are the different types of biological signals?

Biological signals can be classified according to various characteristics of the signal, including the waveform shape, statistical structure, and temporal properties. Two broad classes of signals that are commonly encountered include continuous and discrete signals. The chapter also illustrates the basic components in a bioinstrumentation system.

10. What are biooptical signals?

Biooptical signals may occur either naturally or the signals may be introduced to measure a biological parameter with an external light medium. For example, information about the health of a fetus may be obtained by measuring the fluorescence characteristics of the amniotic fluid.

11. What are the different types of biomedical signals?

Biosignals are used to realize the underlying physiological mechanisms of certain biological system or event. The main biomedical signal types include the signal, carotid pulse (CP) signal, electrocardiogram (ECG) signal, electroencephalogram (EEG) signal, phonocardiogram (PCG) signal, and speech signals.

12. Why are biomedical signals important?

Since biomedical signals are in charge of human life and all activities, it is necessary for us to understand the origin of biomedical signals, the operating principles behind them, and their transmission behavior, and to enumerate common biological signal characteristics, including their amplitude and frequency.

13. What is the origin and transmission of biomedical signals?

For majors in electronic or electrical engineering, the origin and characteristics of biomedical signals are not particularly understood. Thus, in this chapter, we briefly introduce the origin and transmission of some biological signals, as well as common biological signal characteristics, including amplitude and frequency.