

M.Sc. (INSTRUMENTATION) EXAMINATION, 2019

(1<sup>st</sup> Year, 2<sup>nd</sup> Semester)

BIO-MEDICAL SCIENCE - II

Paper-X (T-204B)

Full Marks: 50

Time: Two Hours

*The figures in the margin indicate full marks*

Answer any three of the following questions

Two marks have been allotted for general proficiency.

1. What do you mean by endocrine secretion? Classify the hormones according to chemical structure with example. Briefly describe the general mechanism of action of peptide and steroid hormones at the cellular level. "Sweat secretions are not hormone" ----justify. What are the differences between pheromone and hormone? (2+3+6+2+3)
2. (a) State the mechanism of Gram staining of bacteria. Differentiate between Gram positive and Gram negative bacteria with examples. (6+3)  
(b) What is Rh factor? Write down the recent developments about the creation of universal donor. (2+5)
3. What do you mean by allosteric properties of hemoglobin? What do you mean by co-operative binding of oxygen with hemoglobin? How pH does affect oxygen transport to the tissues? Explain the role of 2,3-Bisphosphoglycerate in hemoglobin function. How do active muscles (with increased metabolism) contribute to an increase in oxygen delivery to the muscles? (5+3+6+2)
4. Discuss about the special junctional tissues of human heart. What is the standard convention when reading an ECG? Correlate the events of the cardiac cycle with a standard ECG. (4+3+9)
5. Name the three sections of the human brain. Briefly state the physical principle behind the generation of EEG. Describe the different waves of EEG in detail. (3 + 3 + 10)