Ref. No. : EX/MSC./INS./2/304B/XV/42/2019

Master of Science (Instrumentation) Examination, 2019

(2nd Year, 1st Semester)

Paper XV (T-304B)

Biology-III

Time: Two hours Full Marks: 50

Answer any three of the following questions

Two marks have been allotted for general proficiency

1. What are the parts of the human brain? Mention the different waves of EEG. Briefly describe how the EEG is recorded. [8 +4+4]

2. What is pacemaker potential? Where and how it is generated? Describe the conduction of cardiac impulse through the human heart? [2 + 5 + 9]

3. What is ECG? What do you mean by ECG lead? What are the different leads for ECG recording? How can you determine heart rate from ECG recording? [2+2+8+4]

4. Why it is necessary to use phase plate in phase contrast microscope. Describe the principles of operation of Polarization microscope. Draw a ray diagram showing the working principle of a fluorescence microscope. What are the necessary corrections which should be made to convert a fluorescence microscope to confocal microscope? [2+5+5+4]

5. (a) What properties of the cells can be measured by a flow cytometer? What is the role of fluorescent marker in FACS? Give some applications of flow cytometry. [3+2+2]

(b) What do you mean by additive and subtractive primary colors? Describe the basic principle of a colorimeter. [3+6]