Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_

G:\logo and QP Template\logo 3 Feb 2018 final.tif

**End Semester Examination – Nov/Dec – 2018**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Code :** | **15EI2032** | **Duration :** | **3hrs** |
| **Sub. Name :** | **BIOELECTRIC PHENOMENA** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Explain in detail about the active transport of substances through membrane. | CO1 | 10 |
| b. | Discuss the importance of Hodgkin–Huxley model with neat diagram. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Outline the physical structure of the cell and highlight its functions. | CO1 | 12 |
| b. | Illustrate the different stages for propagation of nerve action potential. | CO1 | 8 |
|  |  |  |  |  |
| 3. | a. | Prioritize the various characteristic features of cardiac muscle. | CO2 | 6 |
| b. | Examine the various causes of cardiac arrhythmia and explain the features of different cardiac arrhythmias. | CO2 | 14 |
| (OR) | | | | |
| 4. | a. | Describe the various components involved for ECG signal recording and highlight its features. | CO3 | 14 |
| b. | Explain in detail about electrical conduction of human heart. | CO2 | 6 |
|  |  |  |  |  |
| 5. |  | Design a system through block diagram for recording human brain activity and differentiate their wave patterns. | CO3 | 20 |
| (OR) | | | | |
| 6. | a. | Describe the functional elements of nervous system. | CO2 | 10 |
| b. | Summarize the advantages and applications of electroneurogram. | CO2 | 10 |
|  |  |  |  |  |
| 7. |  | Analyze the principles of digestion and absorption in the gastrointestinal tract and obtain the response of intestinal smooth muscles electrical activity. | CO1 | 20 |
| (OR) | | | | |
| 8. | a. | With neat sketch, illustrate how electroretinogram is used to record human eyes activity. | CO3 | 10 |
| b. | Summarize the physiologic anatomy of the gastrointestinal wall. | CO1 | 10 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Draw the diagram for electrode tissue interface for surface electrodes with electrode jelly and highlight the features of metal electrolyte interface. | CO3 | 15 |
| b. | Identify the need for silver-silver chloride electrodes. | CO3 | 5 |