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



**End Semester Examination – Nov / Dec – 2019**

|  |  |  |  |
| --- | --- | --- | --- |
| **Code :** | **17BM2008** | **Duration :** | **3hrs** |
| **Sub. Name :** | **MEDICAL DIAGNOSTIC EQUIPMENTS** | **Max. Marks :** | **100** |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | In an ECG waveform, PQRST represents atrial depolarization and ventricular re-depolarization. The effect of atrial depolarization is less significant. Justify the case. | CO2 | 5 |
| b. | Comment on the generation of ECG signal and the physiological and anatomical changes involved in the body. | CO1 | 5 |
| c. | Depict ECG machine and the components in ECG measurement. | CO3 | 10 |
| **(OR)** | | | | |
| 2. | a. | Portray a clear layout of 10-20 (Montage) electrode system for EEG measurement and explain. | CO1 | 10 |
| b. | Depict 12 channel ECG measurement using chest leads with relevant sketch. | CO1 | 10 |
|  |  |  |  |  |
| 3. | a. | Compare and contrast various body temperature measurement techniques. | CO2 | 10 |
| b. | Illustrate the electromagnetic type blood flow meters and its advantages. | CO5 | 10 |
| **(OR)** | | | | |
| 4. | a. | Describe the indirect measurement of blood pressure and its advantages. | CO3 | 12 |
| b. | Depict the instrumentation system for flame photometers. | CO6 | 8 |
|  |  |  |  |  |
| 5. | a. | Comment on various pulse rate measurement techniques. | CO4 | 8 |
| b. | Differentiate Average and Beat-to-beat calculation of counting heart rate. | CO2 | 6 |
| c. | Sketch and explain the instantaneous heart rate measurement system using matched QRS filter | CO6 | 6 |
| **(OR)** | | | | |
| 6. | a. | Classify and explain the endoscopic techniques used in diagnosis. | CO4 | 10 |
| b. | Portary a clear sketch of MEMS based pressure sensor for blood pressure measurement and explain. | CO6 | 5 |
| c. | List direct methods of blood pressure measurement. | CO5 | 5 |
|  |  |  |  |  |
| 7. | a. | Explain the automatic blood pressure measuring apparatus using Korotkoffs method. | CO3 | 10 |
|  | b. | Outline the principle and applications of a pure-tone audiometer. | CO2 | 10 |
| **(OR)** | | | | |
| 8. | a. | Outline the pictorial representation of pH measurement in blood diagnosis. | CO5 | 6 |
| b. | Illustrate various methods of cardiac output measurement. | CO6 | 14 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Comment on the principle of ultrasound scanner used in medical diagnostics. | CO3 | 10 |
| b. | Discuss ELISA techniques for blood parameter measurement. | CO5 | 10 |