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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – Nov/Dec – 2017**

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| **Code :** | **15EI2021** | **Duration :** | **3hrs** |
| **Sub. Name :** | **ERGONOMICS IN HOSPITALS** | **Max. marks :** | **100** |

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

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Illustrate the working principle of digital manometer with a sketch and mention its advantages. | CO1 | 10 |
| b. | State the normal and abnormal range of blood pressure in humans. | CO1 | 4 |
| c. | Analyse the ergonomic feature present in digital BP meter. | CO1 | 4 |
| d. | Compare the merits and demerits of digital instruments with traditional instruments. | CO1 | 2 |
| (OR) | | | | |
| 2. | a. | Discuss the features of Human–machine system. | CO2 | 6 |
| b. | List the merits of front panel in a medical instrument. | CO2 | 4 |
| c. | Present the detailed analysis of front panel display in an ultrasound machine. | CO2 | 10 |
| 3. | a. | Classify the types of medical devices based on its applications. | CO3 | 6 |
|  | b. | List few merits of non invasive diagnosis. | CO3 | 4 |
|  | c. | Demonstrate the methodology of human body temperature measurement. Develop a modified methodology that makes the measurement feasible for large number of subjects. | CO3 | 10 |
| (OR) | | | | |
| 4. | a. | Design the measurement method for Human system reliability. | CO1 | 6 |
|  | b. | Repeated nature of work in poor environment conditions may cause a human fatigue. Discuss. | CO4 | 4 |
|  | c. | Classify the nature of work in hospital causes the human fatigue. | CO3 | 10 |
| 5. | a. | Present the layout of the hospital and detail its services. Point out areas of physical stress. | CO5 | 10 |
|  | b. | Evaluate the conditions of an efficient work place in hospitals. | CO5 | 10 |
| (OR) | | | | |
| 6. | a. | Design the ergonomic desk for the physician. Explain its features. | CO4 | 10 |
|  | b. | Suggest the lighting conditions for an efficient work in hospital. | CO4 | 10 |
| 7. | a. | Present the various muscle activities. Show the technology for signal recording from muscle. | CO6 | 10 |
|  | b. | Discuss the methods of improving muscle strength. | CO6 | 4 |
|  | c. | Explain the construction and working of electroencephalogram for assessment of cognitive stress. | CO6 | 6 |
| (OR) | | | | |
| 8. | a. | Present few merits of assist devices for humans. | CO5 | 6 |
|  | b. | List the advantages of gait analysis for disabled subjects. | CO5 | 10 |
|  | c. | What is a force plate? Detail the application of force plate. | CO5 | 4 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Compare the functional aspects of conventional and motorized wheel chair. | CO5 | 10 |
|  | b. | Illustrate the computer based methods of physical therapy. | CO5 | 8 |
|  | c. | Calculate the battery ratings for a 12 V motorized chair for 2 hours. | CO 5 | 2 |

ALL THE BEST