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**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Code :** | **15BI3014** | **Duration :** | **3hrs** |
| **Sub. Name :** | **R PROGRAMMING** | **Max. marks :** | **100** |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. |  | Create a data frame for biological data set containing at least five attributes, show syntax and examples of all possible features and characteristics of data frame. | CO1 | 20 |
| (OR) | | | | |
| 2. |  | Give a detailed account on various types of operators and show the effect of operators act on each element of R vector with syntax and suitable examples. | CO1 | 20 |
|  |  |  |  |  |
| 3. |  | List out and explain the types of string functions used in R scripting. Give examples of string manipulations done using string functions. | CO1 | 20 |
| (OR) | | | | |
| 4. |  | Write R script to generate linear regression models for any biological data set. Give comments for each line of script. | CO2 | 20 |
|  |  |  |  |  |
| 5. | a. | Develop a group bar chart and stacked bar chart by defining an own example data set. Show all features of bar chart in the script. | CO2 | 10 |
|  | b. | Write R script to draw a multiline graph and show comments for script. | CO2 | 10 |
| (OR) | | | | |
| 6. |  | Write the significance of BioString module in R and explain its applications towards gene prediction. | CO2 | 20 |
|  |  |  |  |  |
| 7. |  | Design a pipeline for microarray data analysis using bioconductor. | CO3 | 20 |
| (OR) | | | | |
| 8. |  | Investigating evolutionary relations using R package – Give a detailed inferences. | CO3 | 20 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Give in detail the different types of biological sequence analysis using seqinr module with suitable examples**.** | CO3 | 10 |
|  | b. | How will you search for pattern in sequence? Explain with example. | CO3 | 10 |

ALL THE BEST