No. of Printed Pages : 5

BEY–015

BACHELOR OF SCIENCE (APPLIED SCIENCE–ENERGY) (BSCAEY)

Term-End Examination

December, 2025

BEY-015 : COMPUTER DATA ANALYSIS WITH R AND PYTHON

Time : 3 Hours *Maximum Marks : 70*

Note : *Question No.* ***1*** *is compulsory and carries 25 marks. Attempt any* ***three*** *questions from question nos.* ***2*** *to* ***5****.*

---

1. (a) What is the basic difference between an interpreted language and a compiled language ? 3

(b) Write the output of the following R code : 3

A ← matrix (1 : 4, n row = 2); A

B ← matrix (5 : 8, n row = 2, n col = 2); B

C ← matrix (rep (1, 4), n col = 2); C

A – C + B % * % C

(c) Define a vector in R. Describe any *three* methods of creating a vector in R with an example. 3

(d) How are functions structured in R and what are the key components of an R function ? Explain along with the syntax. 3

(e) Define a frozen set in Python and illustrate its properties with an suitable example. 3

(f) What are the steps to create a package and modules in Python ? Explain the process with example. 3

(g) What is the scope of a variable in Python ? Explain local and global variable with example. 3

(h) Write a Python program that prints only odd integers from 0 to 10, using while loop and if condition. 4

2. (a) What are the different assignment operators in Python ? Explain any *four* with suitable examples. 5

(b) What is the difference between logical vectors and character vectors in R ? Explain with the help of an example. 5

(c) What are missing values in the context of R programming ? Illustrate with the help of examples. 5

3. (a) How can the Fibonacci series be implemented using recursion in R ? Write the R code to generate Fibonacci series. 5

(b) Write the name of at least *four* built-in functions, which are available in base package of R. 5

(c) Write the R code to find the mean of the following numbers : 5

25, 35, 15, 12, 41

4. (a) What are the key differences between a framework, library, package and module in Python ? Provide relevant examples for each. 5

(b) Provide a detailed explanation of any *two* data structures in Python with suitable examples for each. 5

(c) Write a program to check whether a number is prime or not in Python. 5

5. (a) List out any *six* membership testing functions in R with suitable examples. 5

(b) Classify the types of files supported by Python. Distinguish between Binary and Text files in Python. 5

(c) List any *three* standard library modules in Python. Illustrate their usage with example. 5

× × × × ×