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BEY-015

**BACHELOR OF SCIENCE (APPLIED
SCIENCE-ENERGY) (BSCAEY)**

Term-End Examination

June, 2026

**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 Questions Nos. 2 to 5.*

1. (a) Explain the differences between
interpreted and compiled languages. 3
- (b) Explain the use of `typeof( )` and
`class( )` function in R with an example of
each. 3

- (c) What are the key components of an R function ? Explain with the help of an example. 4
- (d) Define a Frozen set in Python and illustrate its properties with a suitable example. 3
- (e) What is the output of the following code segment of R : 3

```
× ← c (7, 11, 20, 3, 12)
```

```
median (×)
```

```
mean (×)
```

- (f) What is a dictionary in Python ? Explain with the help of an example. 3
- (g) Write the code in Python to find if an input number is “even” or “odd”. 4
- (h) What will be the output, if the following code of R is executed : 2

```
> for (i in 1 : 3) {
```

```
+ print (i)
```

```
+ }
```

2. (a) How do array and factors differ in R ?
Explain with examples. 5
- (b) Differentiate between Logical vectors
and Character vectors in R, with the
help of an example. 5
- (c) Write coding using R to add the
following two matrices : 5

$$A = \begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix} \text{ and } B = \begin{bmatrix} 6 & 2 \\ 1 & 7 \end{bmatrix}$$

3. (a) Illustrate how a pie chart can be
created using R. 5
- (b) List the advantages of using the
supply() function as compared to the
lapply() function. Illustrate the
supply() function with the help of an
example. 5
- (c) Demonstrate the use of Nested control-
flow constructs in R with examples. 5
4. (a) What are the key differences between a
framework, library package, and
module in Python ? Provide appropriate
example for each. 5

- (b) Explain the use of following operators in Python with the help of examples : 5
- (i) %
 - (ii) +=
 - (iii) !=
 - (iv) and
 - (v) <<
- (c) Write the program to check whether a number is prime or not in Python. 5
5. (a) List out any *five* membership testing functions in R with suitable example. 5
- (b) Describe the different file operations in Python and explain their functionality with syntax. 5
- (c) Mention any *three* standard library modules in Python and illustrate their usage with example. 5

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