Enrollment No.....

Faculty of Engineering

End Sem (Odd) Examination Dec-2019

OE00051 R Programming

Programme: B.Tech. Branch/Specialisation: All

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1 i. R Functionality is divided into number of _____ **1**
(a) Packages (b) Functions (c) Domains (d) All of these

ii. Which of the following will start the R program? **1**
(a) $ R (b) > R (c) * R (d) @ R

iii. R has how many atomic classes of objects? **1**
(a) 1 (b) 2 (c) 3 (d) 5

iv. What will be the output of the following R code? **1**
> x <- 6
> Class (x)
(a) "integer" (b) "numeric" (c) "real" (d) "imaginary"

v. Which of the following R syntax is correct for while loop? **1**
(a) while (statement1) statement2
(b) while (statement1) else statement2
(c) while (statement1) do statement2
(d) while (statement2) doelse statement2

vi. Which of the following is apply function in R? **1**
(a) apply() (b) tapply() (c) fapply() (d) rapply()

vii. Which of the following is an example of a valid graphics device in R? **1**
(a) A socket connection (b) A Microsoft Word document
(c) A PDF file (d) A file folder

viii. Which of the following statement can read csv files? **1**
(a) read.table(filename,header=TRUE,sep=',')
(b) read.csv(filename,header=TRUE,sep=',')
(c) read.tab(filename,header=TRUE,sep=',')
(d) read.tab(filename,header=False,sep=',')

ix. _____ read only parameter that returns the width and height of the current device surface in inches. **1**
(a) Din (b) Fin (c) Gin (d) Kin

P.T.O.

x. _____ is an indication that a fatal problem has occurred, and execution of the function stops. **1**
(a) Message (b) Error (c) Warning (d) Both (a) and (c)

Q.2 i. Write the advantages of R Programming language. **2**

ii. Two vectors X and Y are defined as follows: **3**
X ← c(3, 2, 4) and Y ← c(1, 2).
What will be output of vector Z that is defined as Z ← X*Y.

iii. How missing values and impossible values are represented in R language? **5**

OR iv. What is a factor? How would you create a factor in R explain it with example? **5**

Q.3 Attempt any two:

i. Demonstrate the following dplyr functions: **5**
(a) Select (b) Filter (c) Mutate (d) Arrange
(e) Rename

ii. Explain "rbind()" and "cbind()" functions with examples in R . **5**

iii. Describe different data structures in R. **5**

Q.4 i. Explain any four functions which can be used for debugging in R? **4**

ii. Demonstrate lapply() and sapply() functions using suitable example. **6**

OR iii. Discuss briefly about control structures in R. **6**

Q.5 Attempt any two:

i. Explain about data import in R language **5**

ii. What are the different import functions in R? Also describe serialize() function in R? **5**

iii. Discuss dput() and dump() function in R? **5**

Q.6 Attempt any two:

i. How can you represent date and time in R explain with example? **5**

ii. What is the use of stringR package? Give some examples of the functions in Stringr. **5**

iii. What is use of boxplots in R? How can you create a boxplot? **5**

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Marking Scheme
OE00051 R Programming

Q.1	i.	R Functionality is divided into number of _____ (a) Packages	**1**
	ii.	Which of the following will start the R program? (a) $ R	**1**
	iii.	R has how many atomic classes of objects? (d) 5	**1**
	iv.	What will be the output of the following R code? > x <- 6 > Class (x) (b) “numeric”	**1**
	v.	Which of the following R syntax is correct for while loop? (a) while (statement1) statement2	**1**
	vi.	Which of the following is apply function in R?	**1**
	vii.	Which of the following is an example of a valid graphics device in R? (c) A PDF file	**1**
	viii.	Which of the following statement can read csv files? (b) read.csv(filename,header=TRUE,sep=’,’)	**1**
	ix.	_____ read only parameter that returns the width and height of the current device surface in inches. (a) Din	**1**
	x.	_____ is an indication that a fatal problem has occurred, and execution of the function stops. (b) Error	**1**
Q.2	i.	At least four advantages of R Programming language 0.5 mark for each (0.5 mark * 4)	**2**
	ii.	What will be output of vector Z that is defined as Z ← X*Y. Stepwise marking	**3**
	iii.	Missing values and impossible values are represented in R language Explanation of two functions 2.5 marks for each (2.5 marks * 2)	**5**
OR	iv.	Definition of factor 2 marks Syntax 2 marks Example 1 mark	**5**
Q.3		Attempt any two:	
	i.	Demonstrate the following dplyr functions: 1 mark for each (1 mark * 5)	**5**
	ii.	“rbind()”functions with examples in R 2.5 marks “cbind()” functions with examples in R 2.5 marks	**5**
	iii.	Explanation of five data structures in R. 1 mark for each (1 mark * 5)	**5**
Q.4	i.	Any four functions which can be used for debugging in R Explanation of four debugging function 1 mark for each (1 mark * 4)	**4**
	ii.	Demonstrate lapply() and sapply() functions u Syntax of both functions 1 mark for each (1 mark * 2) 2 marks Purpose of both functions 1 mark for each (1 mark * 2) 2 marks Example of both functions 1 mark for each (1 mark * 2) 2 marks	**6**
OR	iii.	Explanation of four control structure 1.5 marks for each (1.5 marks * 4)	**6**
Q.5		Attempt any two:	
	i.	Data import in R language 1 mark for each point with syntax (1 mark * 5)	**5**
	ii.	Function name and syntax of three import function (1 mark * 3) 3 marks Purpose of serialize function in R 2 marks	**5**
	iii.	dput()function Syntax and purpose 2.5 marks dump() function Syntax and purpose 2.5 marks	**5**
Q.6		Attempt any two:	
	i.	Explanation with three example – date 2.5 marks Explanation with three examples – time 2.5 marks	**5**
	ii.	Purpose of stringR package 2 marks Examples of the functions in Stringr 3 marks	**5**
	iii.	Purpose of boxplots in R 2 marks Correct syntax 3 marks	**5**

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