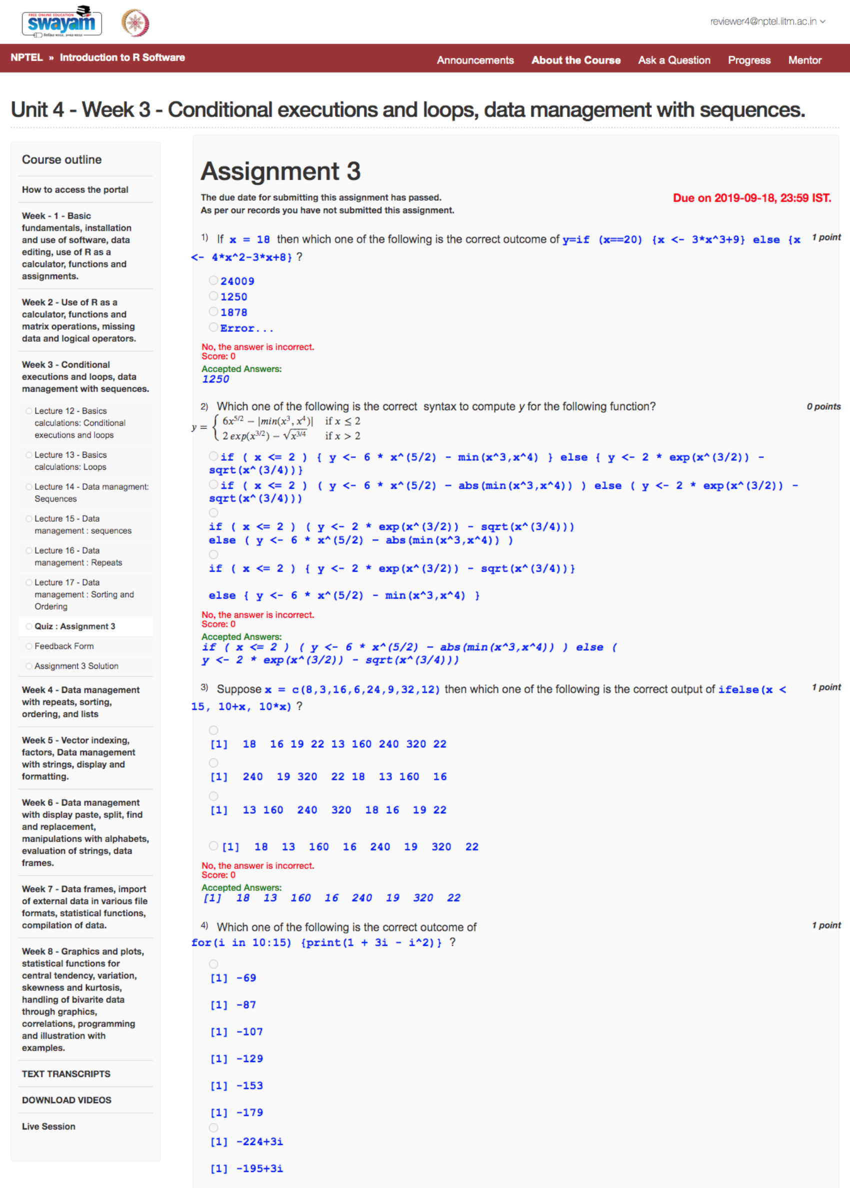

Unit 4 - Week 3 - Conditional executions and loops, data management with sequences.

Course outline

How to access the portal

Week - 1 - Basic fundamentals, installation and use of software, data editing, use of R as a calculator, functions and assignments.

Week 2 - Use of R as a calculator, functions and matrix operations, missing data and logical operators.

Week 3 - Conditional executions and loops, data management with sequences.

- ○ Lecture 12 - Basics calculations: Conditional executions and loops
- ○ Lecture 13 - Basics calculations: Loops
- ○ Lecture 14 - Data managment: Sequences
- ○ Lecture 15 - Data management : sequences
- ○ Lecture 16 - Data management : Repeats
- ○ Lecture 17 - Data management : Sorting and Ordering
- ○ **Quiz : Assignment 3**
- ○ Feedback Form
- ○ Assignment 3 Solution

Week 4 - Data management with repeats, sorting, ordering, and lists

Week 5 - Vector indexing, factors, Data management with strings, display and formatting.

Week 6 - Data management with display paste, split, find and replacement, manipulations with alphabets, evaluation of strings, data frames.

Week 7 - Data frames, import of external data in various file formats, statistical functions, compilation of data.

Week 8 - Graphics and plots, statistical functions for central tendency, variation, skewness and kurtosis, handling of bivariate data through graphics, correlations, programming and illustration with examples.

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Live Session

Assignment 3

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-09-18, 23:59 IST.

1) If `x = 18` then which one of the following is the correct outcome of `y=if (x==20) {x <- 3*x^3+9} else {x <- 4*x^2-3*x+8}` ? *1 point*

○ `24009`
○ `1250`
○ `1878`
○ `Error...`

No, the answer is incorrect.
Score: 0

Accepted Answers:
`1250`

2) Which one of the following is the correct syntax to compute *y* for the following function? *0 points*

$$y = \begin{cases} 6x^{5/2} - |min(x^3, x^4)| & \text{if } x \leq 2 \\ 2\,exp(x^{3/2}) - \sqrt{x^{3/4}} & \text{if } x > 2 \end{cases}$$

○
```
if ( x <= 2 ) { y <- 6 * x^(5/2) - min(x^3,x^4) } else { y <- 2 * exp(x^(3/2)) -
sqrt(x^(3/4))}
```

○
```
if ( x <= 2 ) ( y <- 6 * x^(5/2) - abs(min(x^3,x^4)) ) else ( y <- 2 * exp(x^(3/2)) -
sqrt(x^(3/4)))
```

○
```
if ( x <= 2 ) ( y <- 2 * exp(x^(3/2)) - sqrt(x^(3/4)))
else ( y <- 6 * x^(5/2) - abs(min(x^3,x^4)) )
```

○
```
if ( x <= 2 ) { y <- 2 * exp(x^(3/2)) - sqrt(x^(3/4))}

else { y <- 6 * x^(5/2) - min(x^3,x^4) }
```

No, the answer is incorrect.
Score: 0

Accepted Answers:
```
if ( x <= 2 ) ( y <- 6 * x^(5/2) - abs(min(x^3,x^4)) ) else (
y <- 2 * exp(x^(3/2)) - sqrt(x^(3/4)))
```

3) Suppose `x = c(8,3,16,6,24,9,32,12)` then which one of the following is the correct output of `ifelse(x < 15, 10+x, 10*x)` ? *1 point*

○
```
[1]  18  16 19 22 13 160 240 320 22
```

○
```
[1]  240  19 320  22 18  13 160  16
```

○
```
[1]  13 160  240  320  18 16  19 22
```

○
```
[1]  18  13  160  16  240  19  320  22
```

No, the answer is incorrect.
Score: 0

Accepted Answers:
```
[1]  18  13  160  16  240  19  320  22
```

4) Which one of the following is the correct outcome of `for(i in 10:15) {print(1 + 3i - i^2)}` ? *1 point*

○
```
[1] -69

[1] -87

[1] -107

[1] -129

[1] -153

[1] -179
```

○
```
[1] -224+3i

[1] -195+3i
```

```
[1] -168+3i

[1] -143+3i

[1] -120+3i

[1] -99+3i
```

○

```
[1] -99+3i

[1] -120+3i

[1] -143+3i

[1] -168+3i

[1] -195+3i

[1] -224+3i
```

○

```
[1] -179

[1] -153

[1] -129

[1] -107

[1] -87

[1] -69
```

No, the answer is incorrect.
Score: 0

Accepted Answers:

```
[1] -99+3i

[1] -120+3i

[1] -143+3i

[1] -168+3i

[1] -195+3i

[1] -224+3i
```

5) Which one of the following is the correct outcome of `for(i in 2:5) {print(i - 2*i + 3*i**2)}` ? *1 point*

○

```
[1] -7-2i

[1] -6-2i

[1] -5-2i

[1] -4-2i
```

○

```
[1] 10

[1] 24

[1] 44

[1] 70
```

○

```
[1] 2 - 2*2 + 3*2**2

[1] 3 - 2*3 + 3*3**2

[1] 4 - 2*4 + 3*4**2

[1] 5 - 2*5 + 3*5**2
```

○ `Error...`

No, the answer is incorrect.
Score: 0

Accepted Answers:

```
[1] 10

[1] 24

[1] 44

[1] 70
```

6) Which one of the following is the correct outcome of the following commands about while loop? *1 point*

```
y <- 4
```

```
while (y < 10) {

  print(c("R Course","through SWYAM is helpful."))

  y = y + 2

  print(c("R Course","through SWYAM is not helpful."))

  y = y + 3

}
```

○
```
[1] "R Course"        "through SWYAM is helpful."

[1] "R Course"        "through SWYAM is helpful."

[1] "R Course"        "through SWYAM is not helpful."

[1] "R Course"        "through SWYAM is not helpful."
```

○
```
[1] "R Course"        "through SWYAM is not helpful."

[1] "R Course"        "through SWYAM is not helpful."

[1] "R Course"        "through SWYAM is helpful."

[1] "R Course"        "through SWYAM is helpful."
```

○
```
[1] "R Course"        "through SWYAM is helpful."

[1] "R Course"        "through SWYAM is not helpful."

[1] "R Course"        "through SWYAM is helpful."

[1] "R Course"        "through SWYAM is not helpful."
```

○
```
[1] "R Course"        "through SWYAM is not helpful."

[1] "R Course"        "through SWYAM is helpful."

[1] "R Course"        "through SWYAM is not helpful."

[1] "R Course"        "through SWYAM is helpful."
```

No, the answer is incorrect.
Score: 0

Accepted Answers:
```
[1] "R Course"        "through SWYAM is helpful."

[1] "R Course"        "through SWYAM is not helpful."

[1] "R Course"        "through SWYAM is helpful."

[1] "R Course"        "through SWYAM is not helpful."
```

7) Which one of the following is the correct outcome of the following while loop? *1 point*

```
x <- 2
while(x < 15) {x <- x^2-10; if (x == 20) break; print(x^2); }
```

○
```
[1] 36

[1] 676
```

○
```
[1] 36

[1] 36
```

○
```
[1] 676

[1] 676
```

○
```
[1] 36

[1] 676

[1] 36

[1] 676
```

No, the answer is incorrect.
Score: 0

Accepted Answers:
```
[1] 36
```

[1] 676

8) Which one of the following is the correct outcome of the command `abs(seq(-20,-25))` ? **1 point**

○ `[1] 20 21 22 23 24 25`
○ `[1] -20 -21 -22 -23 -24 -25`
○ `[1] 25 24 23 22 21 20`
○ `[1] -25 -24 -23 -22 -21 -20`

No, the answer is incorrect.
Score: 0

Accepted Answers:
[1] 20 21 22 23 24 25

9) Which one of the following is the correct output of the command `sqrt(abs(seq(-20,20, by = 10)))` ? **1 point**

○ `[1] 3.162278 4.472136 0.000000 4.472136 3.162278`
○ `[1] 4.472136 3.162278 0.000000 3.162278 4.472136`
○ `[1] 3.162278 3.162278 0.000000 4.472136 4.472136`
○ `[1] 4.472136 4.472136 0.000000 3.162278 3.162278`

No, the answer is incorrect.
Score: 0

Accepted Answers:
[1] 4.472136 3.162278 0.000000 3.162278 4.472136

10) Which one of the following is the correct output of the command `seq(10,-10, by = -2)`? **1 point**

○ `[1] -10  -8  -6  -4  -2   0  2  4  6 8  10`
○ `[1] -2  -4  -6  -8  -10  0  10  8  6  4  2`
○ `[1]  2  4  6  8 10  0  -2  -4  -6  -8  -10`
○ `[1]  10  8  6  4  2  0  -2  -4  -6  -8  -10`

No, the answer is incorrect.
Score: 0

Accepted Answers:
[1] 10 8 6 4 2 0 -2 -4 -6 -8 -10

11) Which one of the following is the correct output of the command `seq(to = -100, length = 10)`? **1 point**

○ `[1] 109 108 107 106 105 104 103 102 101 100`
○ `[1] -109 -108 -107 -106 -105 -104 -103 -102 -101 -100`
○ `[1] -91 -92 -93 -94 -95 -96 -97 -98 -99 -100`
○ `[1] 100 101 102 103 104 105 106 107 108 109`

No, the answer is incorrect.
Score: 0

Accepted Answers:
[1] -109 -108 -107 -106 -105 -104 -103 -102 -101 -100

12) Which one of the following is the correct output of the command `seq(to = -200, length = 10)` ? **1 point**

○ `[1] -209 -208 -207 -206 -205 -204 -303 -202 -201 -200`
○ `[1] 209 208 207 206 205 204 303 202 201 200`
○ `[1] 200 201 202 203 204 205 206 207 208 209`
○ `[1] -200 -201 -202 -203 -204 -205 -206 -207 -208 -209`

No, the answer is incorrect.
Score: 0

Accepted Answers:
[1] -209 -208 -207 -206 -205 -204 -303 -202 -201 -200

13) Which one of the following is the correct output of the command `seq(to = 212, length = 12, by = 21)`? **1 point**

○ `[1]  107 128 149 170 191 212 86  65  44  23  2  -19`
○ `[1]  212 191 170 149 128 107  86  65  44  23  2  -19`
○ `[1]  -19  2  23  44  65  86  107  128  149  170  191  212`
○ `[1]  2  19   23  44  65  86  107 128 149 170 191 212`

No, the answer is incorrect.
Score: 0

Accepted Answers:
[1] -19 2 23 44 65 86 107 128 149 170 191 212

14) 14. Which one of the following is the correct output of the command `seq(from = -10, length = 10, by = -3.5)`? **1 point**

○ `[1] -10.0  -6.5  -3.0  0.5  4.0 7.5 11.0  14.5  18.0  21.5`
○ `[1] -10.0 -13.5 -17.0 -20.5 -24.0 -27.5 -31.0 -34.5 -38.0 -41.5`
○ `[1] -10.0 -14.5 -19.0 -23.5 -28.0 -32.5 -37.0 -41.5 -46.0 -50.5`
○ `[1] -10.0  -5.5  -1.0   3.5   8.0  12.5  17.0  21.5  26.0`

No, the answer is incorrect.
Score: 0

Accepted Answers:
[1] -10.0 -13.5 -17.0 -20.5 -24.0 -27.5 -31.0 -34.5 -38.0 -41.5

15) Which one of the following is the correct output of `Y` for the following commands **1 point**

```
X <- c(98, 47, 17, 180, 9, 143, 234, 149, 29, 8)
```

`Y <- seq(along = X)` ?

○ `[1] 1  2  3  4  5  6  7  8  9  10`
○ `[1] 10  5  3  9  2  1  6  8  4  7`
○ `[1] 7  4  8  6  1  2  9  3  5 10`
○ `[1] 10  9  8  7  6  5  4  3  2  1`

No, the answer is incorrect.
Score: 0

Accepted Answers:
`[1] 1  2  3  4  5  6  7  8  9  10`

16) Which one of the following is the correct output of `Y[X[4]]` and `Y[X[9]]` for the command *1 point*

`Y <- c(98, 47, 17, 180, 9, 143, 234, 149, 29, 8)`

`X <- c(5, 10, 7, 1, 4, 6, 8, 3, 2, 9)` ?

○ `180` and `2` respectively.

○ `1` and `149` respectively.

○ `47` and `98` respectively.

○ `98` and `47` respectively.

No, the answer is incorrect.
Score: 0

Accepted Answers:
`98` and `47` respectively.

17) Which one of the following is the correct command to generate a sequence of three yearly dates 1-March-2017, 1-March -2018 and 1- March -2019? *1 point*

○ `seq(as.Date("2017-03-01"), as.Date("2019-03-01"), by = "years")`

○ `seq(as.date("2017-03-01"), as.date("2019-03-01"), as.date("2019-03-01"),by = "years")`

○ `seq(as.Date(`2017-03-01’), as.Date(`2019-03-01’), by = `1’)`

○ `seq(As.Date("2017-03-01"), As.Date("2019-03-01"), by = "years")`

No, the answer is incorrect.
Score: 0

Accepted Answers:
`seq(as.Date("2017-03-01"), as.Date("2019-03-01"), by = "years")`

18) Which one of the following is the correct command to generate the dates of 6 consecutive months starting from 15 June 2017? *1 point*

○ `seq(As.Date("2017-06-15"), by = "months", length = 6)`

○ `seq(as.date("2017-06-15"), by = months, length = 6)`

○ `seq(as.Date("2017-06-15"), by = "months", length = 6)`

○ `seq(as.Date("2017-06-15") to as.Date("2017-08-15") by = "30")`

No, the answer is incorrect.
Score: 0

Accepted Answers:
`seq(as.Date("2017-06-15"), by = "months", length = 6)`

19) Which one of the following is the correct outcome of the command `letter[12:17]` ? *1 point*

○ [1] "l" "m" "n" "o" "p" "q"

○ [1] "L" "M" "N" "O" "P" "Q"

○ [1] "12" "13" "14" "15" "16" "17"

○ `Error...`

No, the answer is incorrect.
Score: 0

Accepted Answers:
`Error...`

20) Which one of the following is the correct outcome of the command `LETTERS[25:15]`? *1 point*

○ `[1] "O" "P" "Q" "R" "S" "T" "U" "V" "W" "X" "Y"`

○

```
[1] "Y" "X" "W" "V" "U" "T" "S" "R" "Q" "P" "O"
```

○

```
[1] "o" "p" "q" "r" "s" "t" "u" "v" "w" "x" "y"
```

○

```
[1] "y" "x" "w" "v" "u" "t" "s" "r" "q" "p" "o"
```

No, the answer is incorrect.
Score: 0

Accepted Answers:

```
[1] "Y" "X" "W" "V" "U" "T" "S" "R" "Q" "P" "O"
```

21) Which one of the following is the correct outcome of the command `rep(15:18,4)`? *1 point*

○

```
[1] 15 15 15 15 16 16 16 16 17 17 17 17 18 18 18
```

○

```
[1] 15 16 16 17 17 17 18 18 18 18
```

○

```
[1] 15 16 17 18 15 16 17 18 15 16 17 18 15 16 17 18
```

○

```
[1] 8 7 6 5 8 7 6 5 8 7 6 5
```

No, the answer is incorrect.
Score: 0

Accepted Answers:

```
[1] 15 16 17 18 15 16 17 18 15 16 17 18 15 16 17 18
```

22) Which one of the following is the correct outcome of the command `rep(15:11, times=3)`? *1 point*

○

```
[1] 15 14 13 12 11 15 14 13 12 11 15 14 13 12 11
```

○

```
[1] 15 15 15 14 14 14 13 13 13 12 12 12 11 11 11
```

○

```
[1] 11 11 11 12 12 12 13 13 13 14 14 14 15 15 15
```

○

```
[1] 11 12 13 14 15 11 12 13 14 15 11 12 13 14 15
```

No, the answer is incorrect.
Score: 0

Accepted Answers:

```
[1] 15 14 13 12 11 15 14 13 12 11 15 14 13 12 11
```

23) Which one of the following is the correct outcome of the command `rep(55:50, each=3)` ? *1 point*

○

```
[1] 55 54 53 52 51 50 55 54 53 52 51 50 55 54 53 52 51 50
```

○

```
[1] 55 55 55 54 54 54 53 53 53 52 52 52 51 51 51 50 50 50
```

○

```
[1] 50 50 50 51 51 51 52 52 52 53 53 53 54 54 54 55 55 55
```

○

```
[1] 50 51 52 53 54 55 50 51 52 53 54 55 50 51 52 53 54 55
```

No, the answer is incorrect.
Score: 0

Accepted Answers:

```
[1] 55 55 55 54 54 54 53 53 53 52 52 52 51 51 51 50 50 50
```

24) Which one of the following is the correct outcome of the commands *1 point*

`x <- matrix(nrow=4, ncol=4, data=1:12, byrow=F)`

`rep(x, each=2)`?

○

```
[1]  1  2  3  4  5  6  7  8  9 10 11 12  1  2  3  4  1  2  3   4  5  6  7  8  9 10 11 12  1
  2  3  4
```

○

```
[1]  1  1  2  2  3  3  4  4  5  5  6  6  7  7  8  8  9  9 10 10 11 11 12 12  1  1  2  2  3  3
  4  4
```

○

```
[1] 12 12 11 11 10 10  9  9  8  8  7  7  6  6  5  5  4  4  3  3  2  2  1  1 12 12 11 11 10
 10  9  9
```

○

```
[1] 12 11 10  9  8  7  6  5  4  3  2  1 12 11 10  9 12 11 10  9  8  7  6  5  4  3  2  1 12
 11 10  9
```

No, the answer is incorrect.
Score: 0

Accepted Answers:

```
[1]  1  1  2  2  3  3  4  4  5  5  6  6  7  7  8  8  9  9 10 10
11 11 12 12  1  1  2  2  3  3  4  4
```

25) Which one of the following is the correct outcome of the command `rep(c("CLASS10", " CLASS20", " CLASS30"), each=3)` ? *1 point*

○

```
[1] "CLASS10"  "CLASS10"  "CLASS10"  " CLASS20" " CLASS20" " CLASS20" " CLASS30" " CLASS30" " CLASS30"
```

○

```
[1] "CLASS10"  "CLASS20"  "CLASS30"  " CLASS10" " CLASS20" "CLASS30" " CLASS10" " CLASS20" "
CLASS30"
```

○

```
[1] CLASS 10 20 30 CLASS 10 20 30
```

○

```
[1] CLASS 10 10 10 CLASS 20 20 20 CLASS 30 30  30
```

No, the answer is incorrect.
Score: 0

Accepted Answers:
[1] "CLASS10" "CLASS10" "CLASS10" " CLASS20" " CLASS20" " CLASS20" "
CLASS30" " CLASS30" " CLASS30"