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2ECE-E

NUMPY PROGRAMMING ASSIGNMENT

1.)

The screenshot shows the Spyder Python IDE interface. The editor window displays a Python script named `X_normalized.py` with the following code:

```
1 import numpy
2
3 X = np.random.random((5,5))
4 print(' ')
5 print('X: ')
6 print(X)
7
8
9 x = X.mean()
10 r = X.std()
11 Z = (X - x)/r
12
13
14
15 print(' ')
16 print(' ')
17
18 print("Normalized X: ")
19 print(Z)
20 np.save('X_normalized.npy', Z)
21
```

The IPython console shows the output of running the script `div_by_3.py` from the directory `D:/Python Filezz`. The output indicates that elements divisible by 3 within the squares of the first 100 positive integers are:

```
In [19]: runfile('D:/Python Filezz/div_by_3.py', wdir='D:/Python Filezz')

Elements divisible by 3 within the squares of the first 100 positive intergers:

[  9  36  81 144 225 324 441 576 729 900 1089 1296 1521 1764
 2025 2304 2601 2916 3249 3600 3969 4356 4761 5184 5625 6084 6561 7056
 7569 8100 8649 9216 9801]

In [20]:
```

The status bar at the bottom indicates the file permissions are `RW`, the end-of-lines are `CRLF`, the encoding is `ASCII`, and the current position is `Line: 20 Column: 32` with `Memory: 76 %`.

2.)

The screenshot displays the Spyder Python IDE interface. The main editor window shows a Python script named `div_by_3.py` with the following code:

```
1 import numpy as np
2
3 M = np.arange(1,101).reshape(10,10)
4 Msquared = M**2
5 MTF = Msquared%3
6 Ans = Msquared[Msquared%3 == 0]
7 print(' ')
8 print('Elements divisible by 3 within the squares of the first 100 positive integers:')
9 print(' ')
10 print(' ')
11 print(Ans)
12 np.save('div_by_3', Ans)
13
14
15
```

The IPython console on the right shows the execution of the script:

```
In [22]: runfile('D:/Python Filezz/div_by_3.py', wdir='D:/Python Filezz')

Elements divisible by 3 within the squares of the first 100 positive integers:

[  9  36  81 144 225 324 441 576 729 900 1089 1296 1521 1764
 2025 2304 2601 2916 3249 3600 3969 4356 4761 5184 5625 6084 6561 7056
 7569 8100 8649 9216 9801]

In [23]:
```

The status bar at the bottom indicates: Permissions: RW, End-of-lines: CRLF, Encoding: UTF-8, Line: 12, Column: 26, Memory: 76%.