Central Tendency Assignment

1)a) Mean = $\dfrac{9+7+11+13+2+4+5+5}{8}$ = 7

Numpy code

```
import numpy as np
arr = np.array([9, 7, 11, 13, 2, 4, 5, 5])
b = np.mean(arr)
print("Mean =", b)
```

output : Mean = 7

b) Mean = $(2.2 + 10.2 + 14.7 + 5.9 + 4.9 + 11.1 + 10.5)/7$

  = 8.5

c) Mean = 11.4

2)
```
import numpy as np
    a = int(input("Enter the terms"))
    f = 0              # First element of series
    s = 1              #
    if a <= 0 :
        print("The requested series is f")
else:
    print(f, s, end = "..")
        for x in range(2, a):
            next = f+s
            print(next, end = " ")
            f = s
            s = next
```

np.mean (a)

Output:
Enter the terms: 10
The requested series: 0,1,1,2,3,5,8,13,21,34

Mean = $\frac{88}{10}$ = 8.8

3) First 5
Prime numbers = 2,3,5,7,11

Mean = $\frac{(2+3+5+7+11)}{5}$

= $\frac{28}{5}$ = $\boxed{5.6}$

Median = Middlemost value = $\left(\frac{n+1}{2}\right)$th term

= $\frac{5+1}{2}$ = 3rd term = $\boxed{5}$

4) Mean = 66

⟹ $\frac{8+11+6+14+x+13}{6}$ = 66

⟹ 52+x = 396

⟹ $\boxed{x = 344}$

5) Mean = 9

⟹ $\frac{6+8+(a+2)+10+(2x-1)+2}{6}$ = 9

⟹ 27+3x = 54

$\Rightarrow \boxed{x = 9}$

6)a)

Age (years)	No. of boys
12	5
10	3
15	2
14	6
8	4

Total no. of boys = 20

$$\text{Mean} = \frac{\Sigma x}{n} = \frac{(12\times5)+(10\times3)+(15\times2)+(14\times6)+(8\times4)}{20}$$

$$= \boxed{11.8} = \text{Avg age of the boys in the locality}$$

b) Mean or Avg marks

$$= \frac{(25\times8)+(30\times12)+(15\times10)+(20\times6)+(24\times4)}{40}$$

$$= \frac{200 + 360 + 150 + 120 + 96}{40}$$

$$= \boxed{23.15}$$

7) ~~Arranging in ascending order :~~

$\therefore$

7a) Mode is: Highest frequency of a number

$= 8$

b) 17 occurs 3 times. So mode is 17

c) 3 occurs 3 times in series. So mode is 3

d) No mode - All numbers occur only once.

8) Median (given) $= 25$

$17, x+4, x+7, 35, 36, 46$

No. of terms $= 6$

Median $= \frac{n+1}{2}$ th term $= \frac{6+1}{2} = 3.5$ th term

Ie, mid value of 3rd & 4th term

So, $\frac{(x+7) + 35}{2} = 25$

$\Rightarrow \boxed{x = 8}$

9) After finding value of x, I will arrange the values in ascending order

10) If the numbers are not arranged, we can get various combinations of 3rd & 4th term, which may give various result for median.

10). I will use mode for measure option "d" where most common color is to be Identified.

Mode is usually used with categorical, ordinal and discrete data. But it is the only measure that can be used for categorical data. In categorical data we cant order the groups.

(b) I will not use mean in all these situations hence answer to (b) is NO.