Python : Output Qns (12-15)

69/75 2

```
list = ['a','b','c','d','e']
print(List[10])
```

Output →

... Index Error : Out of Range ... 2

---

13) `L = [0,10,20,30,40,50,60,70,80,90]`

`L[::2]` #Striding

#ouput of L[::2] is 2

`[0,20,40,60,80]`

---

14) `myList = [[227,122,223],[222,321,192],[21,122,444]]`

```
print(myList[0])
print(myList[0][2])
```

Output → 2

`[227,122,223]`

`[192]`

---

15) `stg = 'ABCD'`

`print(stg.lower())` 2

Output →

`'abcd'`

-6 Marks Lost ↓

-1 Range
-1 Parameter Defn
-1 Probability
-1 Percentile

(2) - 7

P.T.O

Program

16) #program to input list & identify list contains even num.

```
len1 = int (input ("Enter no. of elements in list"))
l1 = [ ]    #initialising list.
#taking i/p.
for i in range(0,len1):
        l1.append (int (input ("Enter the element : ")))
print ("l1", l1).
#checcle l1 is even no. contained list.
ind = false;
for x in l1:
        if ((x % 2) == 0):
                ind = True
                break
if (ind == True):
        print ("List contains Even. number")
else:
        print ("List not Contain Even Number")
```

5

Sample Output →

```
Enter no. of elements in list: 3
Enter the element 1
Enter the element 2
Enter the element 3.
List contains Even number.
```

12).

```
#python progarm to input radius & print area of circle
r = int (input ("Enter radius of circle "))
A = (22/7)* r * r :
print ("Area of circle of radius", r, "is ", A, "sq. units")
```

Sample Output →

```
Enter radius of circle: 7
Area of circle of radius 7 is 254 sq.units
```

5

STATISTICS (5 more Qns) 11-13.

(11) Frequence Distribution Table

Weights (in gm) (Left end inclusive)	Frequency
30 - 35	2
35 - 40	2
40 - 45	3
45 - 50	3
50 - 55	5
55 - 60	3
60 - 65	6
65 - 70	1
70 - 75	4
75 - 80	1
Total	30

(a) class mark of class interval : 50-55

50, 51, 52, 53, 54

= 52 is class mark

(b) Range of above weights

in class interval : (30 - 80) gm

in absolute value : (31 - 75) gm

(c) How many class intervals

10.

(d) Class interval having lowest frequency

freq

65 - 70 = 1.

75 - 80 = 1.

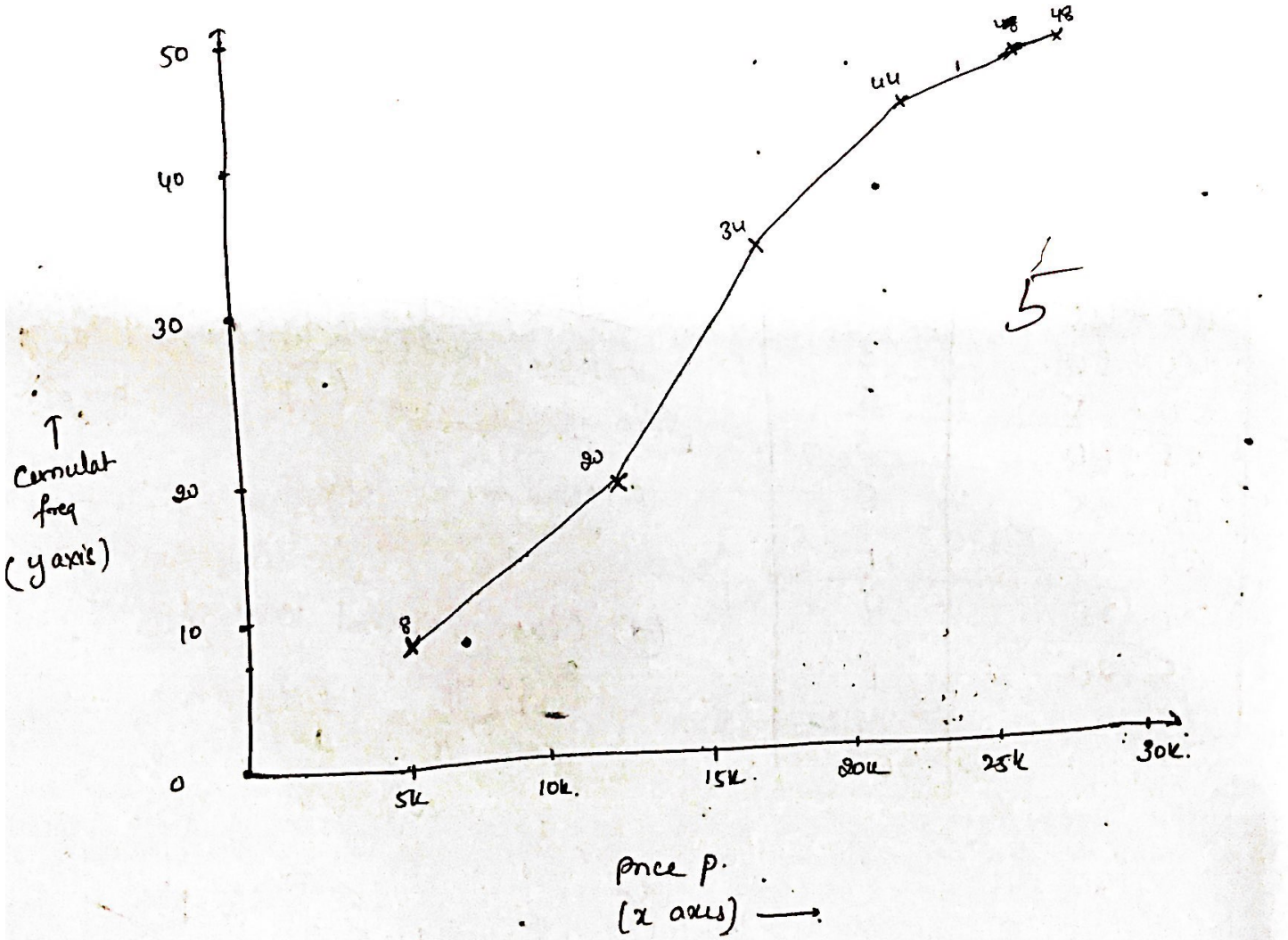
75 - 31 = 44 Ans

4

(12) Number of cars @ showroom

Price P.	frequency.	Cumulat freq
$0 < p < 10k$	8	8
$10k < p < 15k$	12	20 (8+12)
$15k < p < 20k$	14	34 (20+14)
$20k < p < 25k$	10	44 (34+10)
$25k < p < 30k$	4	48 (44+4)
	48	

Cumulative freq. graph / Polygon



(13)

(i) frequency of CI (15-20) = (25)

(ii) CI having greatest frequency = (20 – 25) = (30 maximum)

(iii) cumulate freq. of CI 25-30

= 20+25+30+15

= 90

(iv) short Freq. table.

(Class interval)	frequency
10 - 15	20
15 - 20.	25
20 - 25	30
25 - 30	15
30 - 35	10
35 - 40	5
	105

5

(v) cumulate freq. table

Class interval	cumulat freq
10 - 15	20.
15 - 20	45
20 - 25	75
25 - 30	90
30 - 35	100
35 - 40	105

Python - Theory Qns (8 1-11)

1) Key Features of Python

→ code readability
→ Indentation usage
→ Object oriented approach
→ Less Verbosity
→ Easy to learn.
→ Duck type
→ Interpreter based,

2

2)

Lists	Tuples
are indexable, mutable array of python objects	are indexable. immutable array of
enclosed by [ ]	enclosed by ( )
Example L1 = [1, 2, 'hai']	Example: t1 = (1, 2, 3.0)

· Similarity
└ both are indexable

2

3) 10 Reserved words in Python

2

break	continue	if	elif	for
while	len.	int	float	type
pass	pass	input	print	del

4) first letter of a string can be capitalised using .capitalise() string function

Ex: str = "niranjan sir is our teacher"
print(str.capitalise())

2

Output
'Niranjan sir is our teacher'

⑤ In python a block of code is represented / defined by 'indent' rather an { } (flower braces) like in other programming languages such as 'C'

Ex:

```
if (a>b):
    print ("A>B")
```

✓

```
if (a>b):
{
    print ("A>B")
}
```

✗

⑥ Membership operators are used to find a value / string in an iterables such as string, list, tuple, etc., They return boolean (True or false)

Ex: They are `in` and `not in`

Ex:

A = [1, 2, 3, 4]

1 in A → True

8 in A → false.

⑦ Pyton supports

* numeric data types such as int, float & complex number

  Ex 1, 2.0, 0+2j.

* Sequence data types such as string, list & tuple

  S = "swan"

  L = [1,2,3]

  t1 = (4,5,6)

* It also supports set & Dictionary data ty

Set 1 = {4, 5, 6, 8}

dict 1 = {1 : 'one', 2 : 'two'}

* Boolean type (True or false). 2

8) 'Break' is used to terminate for loop & move control out of for loop

'Continue' is used skip the particular iteration in a loop.

Ex: for i in l1:

```
if(i==2):
    print(i)
    if (i==2):
        break
```

l1 = [1, 2, 3]

2

Output:

1,

```
for i in l1:
    print(i)
    if (i==2):
        continue
        print(i). # this not execut
```

Output

1, 2 3

9) - Input can be taken using 'input' keyword

- we can also enter prompt text within

- by default, "string format" will be considered for inputed object

2

- to get int or float we have typecast.

- we can assign to a variable.

Ex:

x = int(input("Enter the number"))

here we are assigning integer input to 'x'

). we can get list of all keys in dictionary using .keys() function

consider x = {1 : 'one', 2 : 'two'}

print(x.keys())

output

1 2.

2

11) converting list to string

can be done in many ways.

1) Using for loop

Ex: la = ['s', 'w', 'a'] , sa = "" #empty string

for i in range(0, len(a)):

~~sa.append(la[i])~~ sa[i] = la[i]

print(la)

print(sa)

output ['s', 'w', 'a'].

"swa"

('').join()

2) Similarly using while loop .. 2

3) .join() function

it is used to join elements in a list as sequence

/string type

Statistics - Theory (Q 1-10)

1) **Statistics** is process of collecting, processing and visualing data. to derive insights from given data set.

goal of statistics is to study all population objects but practically not feasible

so we study a small sample & relate it to a large population 2

2). **Terminologies in Statistics**

1) **Population**

intended set of objects we want to study about parameter

2) **Sample**

-subgroup of population we study to. relate it to population about parameter

3) **Parameter**

- key ~~subject~~ Behaviour/property we want to study sample/population

4) **Statistic**

- proportion, mean, median, deviation, variance, etc is called as statistic

3) **3 sampling strategies**

1) Simple Random sampling
2) Stratified Sampling
3) Clustered sampling

2

4) - Descriptive statistics are key coefficients that describe the dataset ⑥

- They are measure of central tendency like → Mean, median, mode
- Also measure of spread like Range, percentile, etc
- → They provide us special insights along with
  - freq. plots, histograms, Stem & Leaf plots, Scatter plots. 2

5) → Probability is study of possibility of random events.

→ It is also called as study of chances

- Key ~~statistic~~ statistical measure, Mean, median, mode are calculated to predict some assured event. Ex: mean score of Sachin tells us how much Sachin can score once he comes get into field.
- Similarly, It is highly useful in correlating sample study to project to population.

~~6) Fig: Diff~~

useful for. 1

use study of sample statistics for correlating to population

P.T.O

6) Data Types in Statistics

(1) Qualitative / categorical data types are. types where data element are defined using finite range of discret class.

Ex (1) Color
Red, Blue, orange
⇓
Nominal.

Ex (2). Opinion
Agree, Neutral, Disagree
⇓
Ordinal.

1a) Nominal. Qualitative data type when there is no natural order as in (Ex 1)

1b) Ordinal Qualitative data type when there is some natural order in data set as in (Ex 2)

(2) Quantitative / Numeric data type where, data element can be described only by numeric way. (integer & fraction)

Ex (1) No. of Days leave taken
1, 2, 3, ... 20.

(2) weight of person
@ 60.245 kg

Discrete Quantitative data type where number can be expressed in discrete for say integers as in (Ex 1)

Continuous Quantitative data type where number can take fractional value, as in Ex 2) ... ##

Describing Qualitative Data

This can be done using

1) Frequency table
2) Frequency plots such as
   - Relative Frequency plot
   - Grouped Frequency plot.

→ Tests used

ANOVA (Analysis of Variance)
chi-square test

2

8) Describing Quantitative Data.

1) Frequency table & ~~freq~~
2) Frequency plots such as Histogram
   - Relative frequency plot.
   - Cumulative frequency plot.
3) Stem & leaf plots
4) Scatter plots.
5) Frequency Polygon

2

- Regression can be used

9) Percentile (P_i) of given data ~~set~~ score (i).

1

$P_i = \frac{1}{n}(kp+1)$ where kp = position of score x
n = total no. of elements

$$y_p = x_{ip} * f_p(x_{i_{p+1}} - x_{ip})$$

10) Standard deviation for sample.

$$s^2 = \frac{1}{n-1}\sum_{n=0}^{n}(x-\bar{x})^2$$

S.D for population

$$\sigma = \frac{1}{N}\sum_{n=0}^{N}(x-\bar{x})^2$$

2

Rough Work

30

(30-34)	31	33				
(35-39)	36	38				
(40-44)	41	44	43			
45-49	46	46	47			
50-54	51	54	53	51	54,	
55-59	56	56	59			
60-64	63	62	63	60,	61	63
65-69	66					
70-74	71	71	71	74,		
75-79	75					

class mark = mid part

1, 2, (3) 4.

$\frac{1}{n}(x_n+1)$

$P_i = \frac{1}{n}(4p+1)$

$= \frac{1}{4}(3+1) = 75\%$

Rough Work

P-2		5	1,2,3,4, 6,7,8,9 10,11,12,13,14,15,16,
P-5			16,17 -
5-2		9,10.	1,2,3,4, 5,6,7,8. 9.
51			11,12,13,

$\frac{22}{7} \times 7 \times 7$

22×7

1
110
40
254