

1. Raw data are the data that:

- A) are presented in the form of a frequency table
- B) give information on each individual sample member separately
- C) are arranged in increasing order
- D) are arranged in a random order

Ans: B Difficulty level: low Objective: Explain what is meant by the term "raw data."

2. We obtain the relative frequency of a category by:

- A) dividing the frequency of that category by the sum of all frequencies
- B) multiplying the frequency of that category by 100
- C) dividing the frequency of that category by 100
- D) dividing the sum of all frequencies by the frequency of that category

Ans: A Difficulty level: medium Objective: Construct a relative frequency and percentage distribution.

3. We obtain the percentage of a category by:

- A) multiplying the frequency of that category by 100
- B) multiplying the relative frequency of that category by 100
- C) dividing the frequency of that category by 100
- D) dividing the sum of all frequencies by the frequency of that category

Ans: B Difficulty level: medium Objective: Construct a relative frequency and percentage distribution.

Use the following to answer questions 4-8:

The following table gives the frequency distribution of the highest degrees held by 25 professionals.

Highest Degree	<i>f</i>
Bachelor's	12
Master's	9
Doctorate	4

4. The number of persons with a Master's degree as their highest degree is:

Ans: 9

Difficulty level: low Objective: Construct a frequency distribution table for qualitative data.

5. The number of persons who possess a Doctorate is:

Ans: 4

Difficulty level: low Objective: Construct a frequency distribution table for qualitative data.

6. The percentage of persons with a Bachelor's degree as the highest degree is:
 Ans: 48%
 Difficulty level: low Objective: Construct a relative frequency and percentage distribution.
7. The percentage of persons who hold a Doctorate is:
 Ans: 16%
 Difficulty level: low Objective: Construct a relative frequency and percentage distribution.
8. The percentage of persons who do not hold a Doctorate is:
 Ans: 84%
 Difficulty level: low Objective: Construct a relative frequency and percentage distribution.

Use the following to answer questions 9-13:

The following table gives the frequency distribution of opinions of 50 persons in regard to an issue.

Opinion	<i>f</i>
In favor	20
Against	19
No opinion	11

9. The percentage of persons who have no opinion is:
 Ans: 22%
 Difficulty level: low Objective: Organizing qualitative data
10. The relative frequency, expressed to two decimal places, of the "Against" category is:
 Ans: 0.38
 Difficulty level: low Objective: Construct a relative frequency and percentage distribution.
11. The sample size is:
 Ans: 50
 Difficulty level: low Objective: Construct a frequency distribution table for qualitative data.
12. The percentage of persons who are either against this issue or have no opinion is:
 Ans: 60%
 Difficulty level: low Objective: Construct a relative frequency and percentage distribution.

Use the following to answer questions 26-35:

The following table gives the frequency distribution of test scores for a math class of 30 students.

Score	f
61 to 70	1
71 to 80	7
81 to 90	13
91 to 100	9

26. The number of classes in this frequency table is:

Ans: 4

Difficulty level: low Objective: Construct a frequency distribution table for quantitative data.

27. The width of each class in this frequency table is:

Ans: 10

Difficulty level: low Objective: Find class width.

28. The midpoint of the fourth class is:

Ans: 95.5

Difficulty level: low Objective: Calculate class midpoint (class mark).

29. The lower boundary of the first class is:

Ans: 60.5

Difficulty level: low Objective: Construct a frequency distribution table for quantitative data.

30. The upper boundary of the third class is:

Ans: 90.5

Difficulty level: low Objective: Construct a frequency distribution table for quantitative data.

31. The sample size is:

Ans: 30

Difficulty level: low Objective: Construct a frequency distribution table for quantitative data.

32. The relative frequency of the second class, rounded to three decimal places, is:

Ans: 0.233

Difficulty level: low Objective: Construct a relative frequency and percentage distribution.

33. The percentage of students who scored 80 or less on the test, rounded to two decimal places, is:

Ans: 26.67%

Difficulty level: low Objective: Construct a relative frequency and percentage distribution.

34. The lower limit of the fourth class is:

Ans: 91

Difficulty level: low Objective: Construct a frequency distribution table for quantitative data.

35. The upper limit of the fourth class is:

Ans: 100

Difficulty level: low Objective: Construct a frequency distribution table for quantitative data.

Use the following to answer questions 36-45:

The following table gives the frequency distribution of rents paid per month by 500 families selected from a city.

Rent	<i>f</i>
301 to 400	26
401 to 500	49
501 to 600	75
601 to 700	102
701 to 800	141
801 to 900	107

36. The number of classes in this frequency table is:

Ans: 6

Difficulty level: low Objective: Construct a frequency distribution table for quantitative data.

37. The width of each class in this frequency table is:

Ans: 100

Difficulty level: low Objective: Find class width.

38. The midpoint of the second class is:

Ans: 450.5

Difficulty level: low Objective: Calculate class midpoint (class mark).

39. The lower boundary of the fifth class is:
Ans: 700.5
Difficulty level: low Objective: Construct a frequency distribution table for quantitative data.
40. The upper boundary of the fourth class is:
Ans: 700.5
Difficulty level: low Objective: Construct a frequency distribution table for quantitative data.
41. The sample size is:
Ans: 500
Difficulty level: low Objective: Construct a frequency distribution table for quantitative data.
42. The relative frequency of the sixth class, rounded to three decimal places, is:
Ans: 0.214
Difficulty level: low Objective: Construct a relative frequency and percentage distribution.
43. The percentage of families who paid a rent of \$500 or less per month, rounded to one decimal place, is:
Ans: 15.0%
Difficulty level: low Objective: Construct a relative frequency and percentage distribution.
44. The lower limit of the third class is:
Ans: 501
Difficulty level: low Objective: Construct a relative frequency and percentage distribution.
45. The upper limit of the second class is:
Ans: 500
Difficulty level: low Objective: Construct a relative frequency and percentage distribution.

Use the following to answer questions 46-51:

The following table gives the frequency distribution of the number of telephones owned by a sample of 50 households selected from a city.

Number of Telephones Owned	<i>f</i>
0	3
1	20
2	14
3	3
4	10

46. The relative frequency of the second class, rounded to two decimal places, is:
 Ans: 0.4
 Difficulty level: low Objective: Construct a frequency distribution using single-valued classes.
47. The number of households which own more than one telephone is:
 Ans: 27
 Difficulty level: low Objective: Construct a frequency distribution using single-valued classes.
48. The percentage of households which own three or more telephones is:
 Ans: 26%
 Difficulty level: low Objective: Construct a frequency distribution using single-valued classes.
49. The number of households which own one or two telephones is:
 Ans: 34
 Difficulty level: low Objective: Construct a frequency distribution using single-valued classes.
50. The percentage of households which do not own a telephone is:
 Ans: 6%
 Difficulty level: low Objective: Construct a frequency distribution using single-valued classes.
51. The number of classes for this frequency distribution table is:
 Ans: 5
 Difficulty level: low Objective: Construct a frequency distribution using single-valued classes.

Use the following to answer questions 52-57:

The following table gives the frequency distribution of the number of rooms for a sample of 100 houses.

Number of Rooms	<i>f</i>
2	8
3	10
4	20
5	24
6	18
7	10
8	10

52. The relative frequency of the fourth class, rounded to two decimal places, is:
 Ans: 0.24
 Difficulty level: low Objective: Construct a frequency distribution using single-valued classes.
53. The percentage of houses that have three or fewer rooms is:
 Ans: 18%
 Difficulty level: low Objective: Construct a relative frequency and percentage distribution.
54. The percentage of houses that contain five or more rooms is:
 Ans: 62%
 Difficulty level: low Objective: Construct a relative frequency and percentage distribution.
55. The number of houses that contain four or five rooms is:
 Ans: 44
 Difficulty level: low Objective: Construct a frequency distribution using single-valued classes.
56. The relative frequency of the fifth class, rounded to two decimal places, is:
 Ans: 0.18
 Difficulty level: low Objective: Construct a relative frequency and percentage distribution.
57. The number of classes for this frequency distribution table is:
 Ans: 7
 Difficulty level: low Objective: Construct a frequency distribution using single-valued classes.

64. The percentage of families with an income of \$70,000 or more, rounded to one decimal place, is:

Ans: 16.5%

Difficulty level: low Objective: Construct a cumulative relative frequency distribution table.

65. The number of families with an income of \$40,000 or less is:

Ans: 79

Difficulty level: low Objective: Construct a cumulative frequency distribution table.

66. The number of families with an income of \$85,000 or more is:

Ans: 9

Difficulty level: low Objective: Construct a cumulative frequency distribution table.

Use the following to answer questions 67-72:

The following table gives the cumulative frequency distribution of the commuting time (in minutes) from home to work for a sample of 400 persons selected from a city.

Time (minutes)	<i>f</i>
0 to less than 10	67
0 to less than 20	158
0 to less than 30	223
0 to less than 40	291
0 to less than 50	350
0 to less than 60	400

67. The sample size is:

Ans: 400

Difficulty level: low Objective: Construct a cumulative frequency distribution table.

68. The percentage of persons who commute for less than 30 minutes, rounded to two decimal places, is:

Ans: 55.75%

Difficulty level: low Objective: Construct a cumulative relative frequency distribution table.

69. The cumulative relative frequency of the fourth class, rounded to four decimal places, is:

Ans: 0.7275

Difficulty level: low Objective: Construct a cumulative relative frequency distribution table.

70. The percentage of persons who commute for 40 or more minutes, rounded to two decimal places, is:

Ans: 27.25%

Difficulty level: low Objective: Construct a cumulative relative frequency distribution table.

71. The percentage of persons who commute for less than 50 minutes, rounded to two decimal places, is:

Ans: 87.50%

Difficulty level: low Objective: Construct a cumulative relative frequency distribution table.

72. The number of persons who commute for 20 or more minutes is:

Ans: 242

Difficulty level: low Objective: Construct a cumulative frequency distribution table.

73. For the observation 4, the stem is:

Ans: 0

Difficulty level: low Objective: Construct a stem-and-leaf display.

74. For the observation 34, the leaf is:

Ans: 4

Difficulty level: low Objective: Construct a stem-and-leaf display.

75. You ask 27 people what kind of pet they own. Seven people have dogs, five have cats, three have birds, and the remainder have no pets. The relative frequency of dog owners, rounded to three decimal places, is:

Ans: 0.259

Difficulty level: low Objective: Construct a relative frequency and percentage distribution.

76. Fifteen programmers were asked what computer language was used in their first programming class. The raw data appears below:

Java	Visual Basic	Visual Basic	Java	Fortran
C++	C++	Fortran	Java	Visual Basic
Fortran	Visual Basic	C	Visual Basic	Visual Basic

The percentage of people, rounded to two decimal places, who did not answer "Fortran" is:

Ans: 80.00%

Difficulty level: low Objective: Construct a relative frequency and percentage distribution.

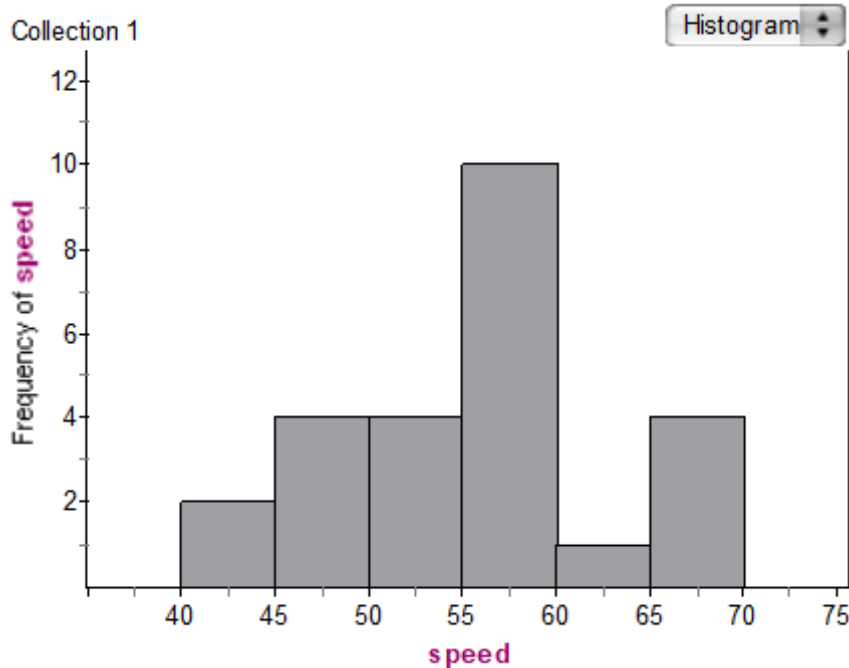
77. In a game of four-handed Hearts, all 52 cards of a standard deck are dealt, so that each player starts each round with 13 cards in a hand. Suppose player A's hand has three clubs, six diamonds, two hearts, and two spades. What is the relative frequency of spades, rounded to two decimal places, dealt to player A?

Ans: 0.15

Difficulty level: low Objective: Construct a relative frequency and percentage distribution.

Use the following to answer questions 78-81:

A highway patrolman records the following speeds (in mph) for 25 cars that pass through his radar within a five-minute interval. Here is the histogram of that data:



78. What is the width of each class?

Ans: 5

Difficulty level: low Objective: Find class width.

79. How many observations fall in the fourth interval?

Ans: 10

Difficulty level: low Objective: Create a frequency histogram.

80. The relative frequency of drivers whose speed is less than 55 mph, rounded to two decimal places, is?

Ans: 0.40

Difficulty level: low Objective: Create a relative frequency histogram.

81. The speed limit on this street is 60 mph. What percentage of drivers are traveling at or above the speed limit?

Ans: 20%

Difficulty level: low Objective: Create a relative frequency histogram.

Use the following to answer questions 82-84:

Suppose you have the following stem-and-leaf display:

```

1 | 1 3
2 | 1 2 8
3 | 5
4 | 4
    
```

Stem: Tens Leaf: Ones

82. What is the value of smallest data point in this data set?

Ans: 11

Difficulty level: low Objective: Construct a stem-and-leaf display.

83. How many observations are in this data set?

Ans: 7

Difficulty level: low Objective: Construct a stem-and-leaf display.

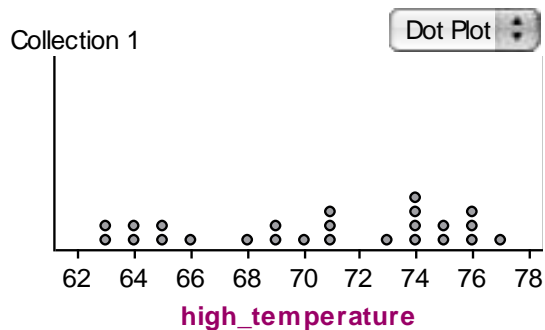
84. What is the sum of the data values in the bottom two branches in this display?

Ans: 79

Difficulty level: low Objective: Construct a stem-and-leaf display.

Use the following to answer questions 85-88:

Here is a dot plot of the daily high temperature (in Fahrenheit) from a sample of 25 U.S. cities:



85. Which high temperature has the highest frequency?

Ans: 74

Difficulty level: low Objective: Create a dot plot.

86. What is the relative frequency of high temperatures, rounded to two decimal places, that are 71 degrees or lower?

Ans: 0.56

Difficulty level: low Objective: Create a dot plot.

87. How many cities had a high temperature of 72?

Ans: 0

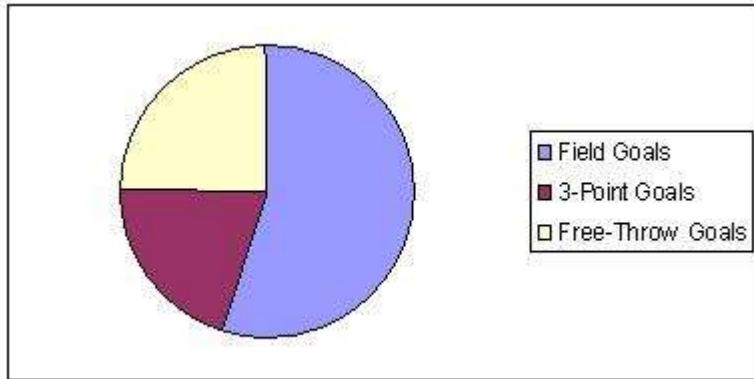
Difficulty level: low Objective: Create a dot plot.

88. What percentage of cities had a high temperature of more than 74 degrees?

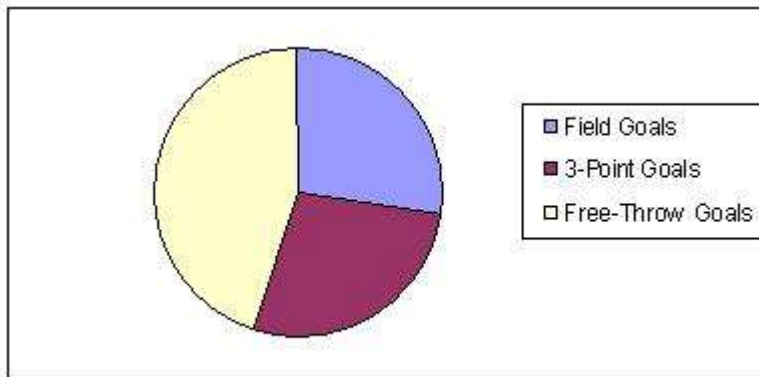
Ans: 24%

Difficulty level: medium Objective: Create a dot plot.

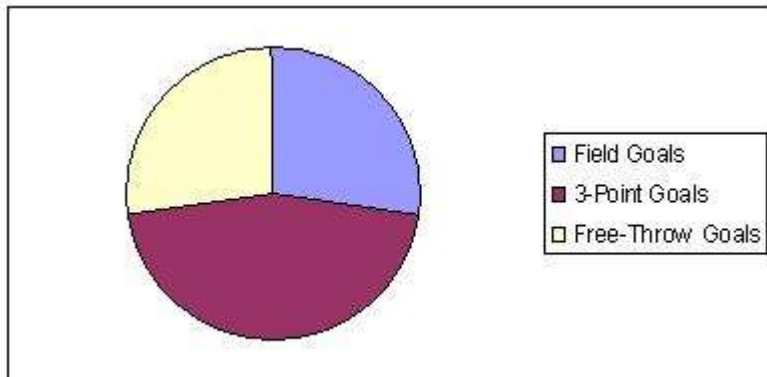
89. In 2007/2008 basketball season, Steve Nash scored 485 field goals, 179 3-point field goals, and 222 free-throw goals. Find the pie chart that better describes the data.



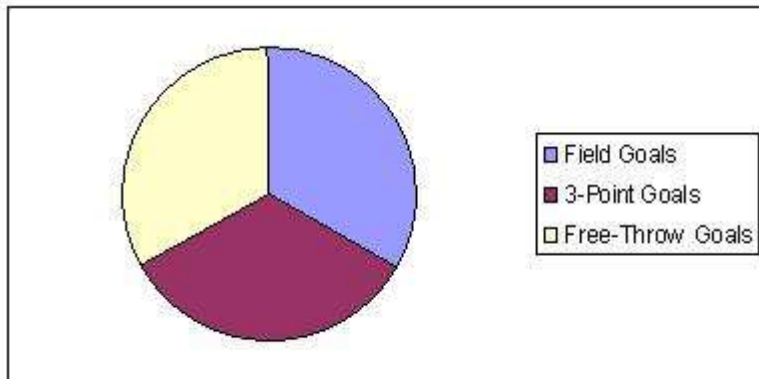
A)



B)



C)



D)

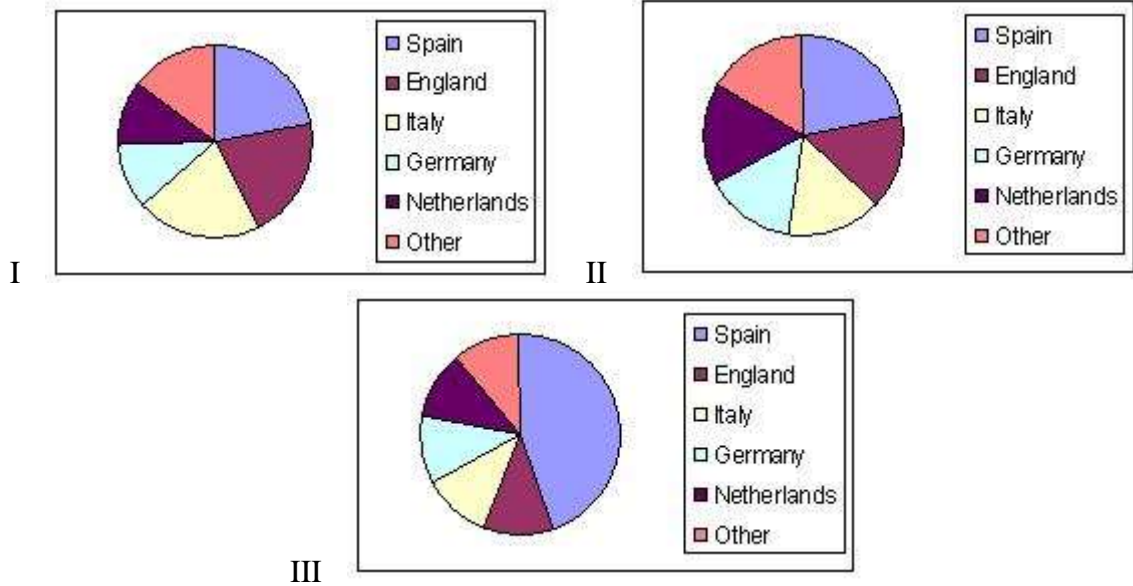
Ans: A Difficulty Level: Easy Difficulty level: low
Objective: Construct a pie chart.

90. The following table shows the countries whose teams have won the UEFA Champions League.

Country	Frequency
Spain	12
England	11
Italy	11
Germany	6
Netherlands	6
Other	8

a) Calculate the relative frequency of each country. Round your answers to three decimal places

b) Select the pie chart that better describes the data.



Ans: a)

Country	Relative Frequency
Spain	0.222
England	0.204
Italy	0.204
Germany	0.111
Netherlands	0.111
Other	0.148

b) I

Difficulty Level: Medium Difficulty level: medium

Objective: Construct a pie chart.

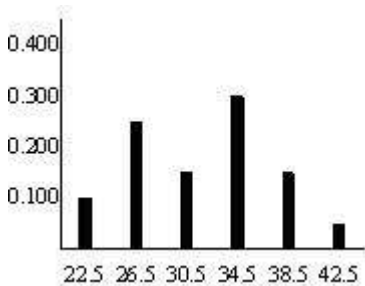
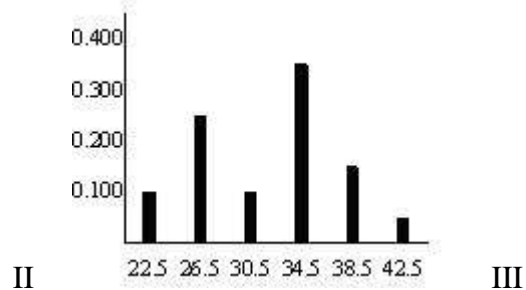
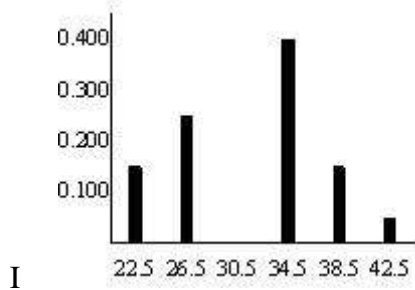
91. The number of touchdowns of a college football team is:

38 36 30 33 37 30 35 34 43 27 36 38 21 26 26 27
31 22 28 36

a) Complete the frequency distribution.

Class Interval	Frequency	Relative Frequency
21 - 24	----	----
25 - 28	5	0.250
29 - 32	----	----
33 - 36	----	----
37 - 40	3	0.150
41 - 44	1	0.050
Total	20	1.000

b) Select the bar graph that matches the data.



Ans: a)

Class Interval	Frequency	Relative Frequency
21 - 24	2	0.100
25 - 28	5	0.250
29 - 32	3	0.150
33 - 36	6	0.300
37 - 40	3	0.150
41 - 44	1	0.050
Total	20	1.000

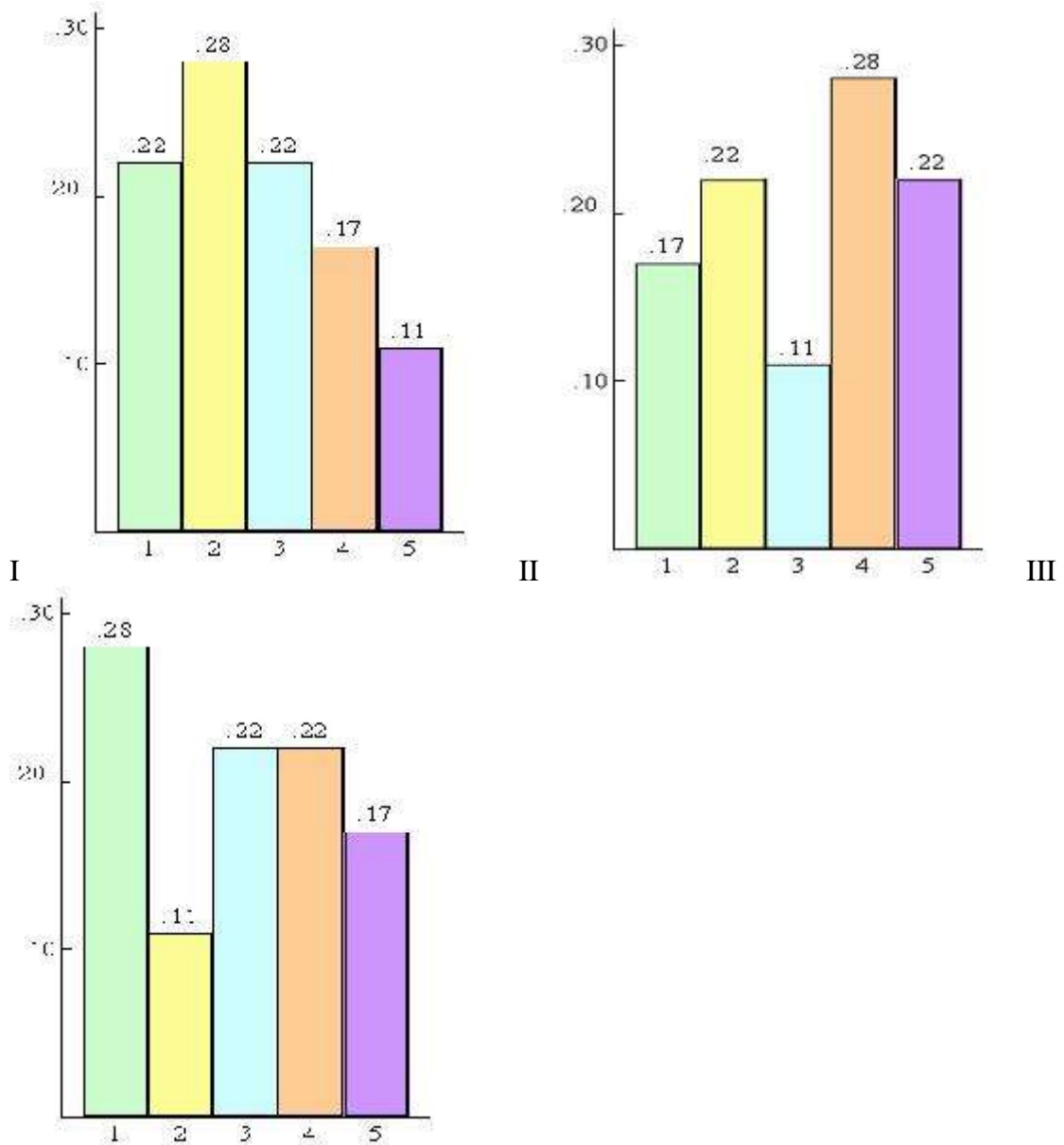
b) I

Difficulty Level: Medium Difficulty level: medium

Objective: Construct a bar graph.

92. Find the histogram that better describes the data.

Value x	Frequency	Relative Frequency
1	4	0.22
2	5	0.28
3	4	0.22
4	3	0.17
5	2	0.11
Total	18	1.000



Ans: I

Difficulty Level: Easy

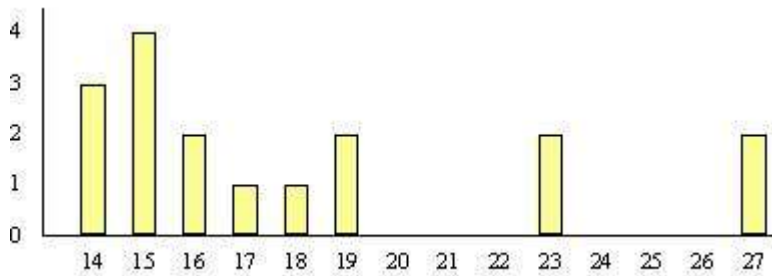
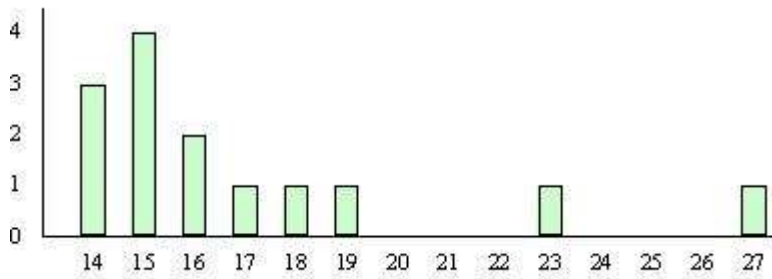
Difficulty level: low

Objective: Construct a bar graph.

93. The maximum number of goals scored by a national team in the last 14 FIFA's World Cups is shown below. Select the bar graph that matches with the data.

14	15	15	16	16	17	23
18	15	14	15	19	14	27

I
II



Ans: II

Difficulty level: low

Objective: Construct a bar graph.