DI Test 3 & 5

Directions (1 – 5): Study the following table carefully to answer these questions.

Number of workers employed in six units of a factory during the years.						
Unit Year	**A**	**B**	**C**	**D**	**E**	**F**
1998	**145**	**88**	**115**	**120**	**140**	**135**
1999	**128**	**76**	**122**	**112**	**152**	**132**
2000	**136**	**96**	**132**	**124**	**158**	**140**
2001	**1833**	**92**	**125**	**135**	**166**	**126**
2002	**160**	**107**	**140**	**118**	**170**	**146**
2003	**152**	**110**	**148**	**128**	**175**	**150**

1. Find the difference between total workers employed by all units in 2001 and total workers employed by all units in 2003.
(a) 34 (b) 30 (c) 46 (d) 36 (e) None of these

2. Find ratio of workers employed in C and D together in 2001 and workers employed in A and F together in 1998.
(a) 13 : 14 (b) 14 : 13 (c) 11 : 13 (d) 13 : 11 (e) None of these

3. Total workers employed in unit C throughout years is what approximate percent more or less than the number of workers employed in unit E throughout the years.
(a) 12.82% (b) 18.6% (c) 11.2% (d) 13 % (e) 14 %

4. In 2000 average number of candidates employed by all the unit together.
(a) 130 (b) 131 (c) 132 (d) 133 (e) None of these

5. Total number of workers employed by unit B in all the years is approximately what percent of total number of candidates employed in all units in year 2003.
(a) 66% (b) 70% (c) 71% (d) 69% (e) 85%

Directions {6 – 10}: Answer the questions based on the information given below.
A survey is conducted among 2100 people about the type of food (Chinese, Italian or South Indian) they prefer to eat when they eat outside. The number of people who like Chinese, South Indian and Italian are in the ratio of 7:9:6 respectively. Number of people who like both Chinese and Italian but not South Indian are 25% less than number of people who like all three foods. Number of people who like South Indian and Italian but not Chinese are 5 more than number of people who like Chinese and Italian but not South Indian. The number of people who like both Chinese and South Indian are 15 less than number of people who like both South Indian and Italian. The number of people who like only Italian are five less than six times of the people who like Chinese and South Indian but not Italian. The sum of number of people who like Chinese, South Indian and Italian = 1320.

6. What is the number of people who like all three food items?
A.50 B.35 C.45 D.60 E.None of these

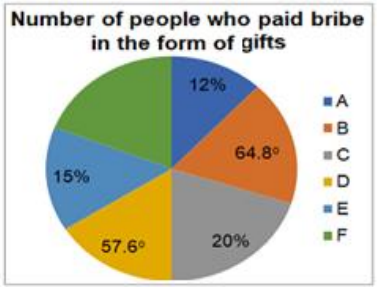
7. What is the ratio of number of people who like Chinese and South Indian but not Italian to number of people who like Chinese and Italian but not South Indian?
A.9:7 B.7:9 C.5:7 D.6:7 E.None of these

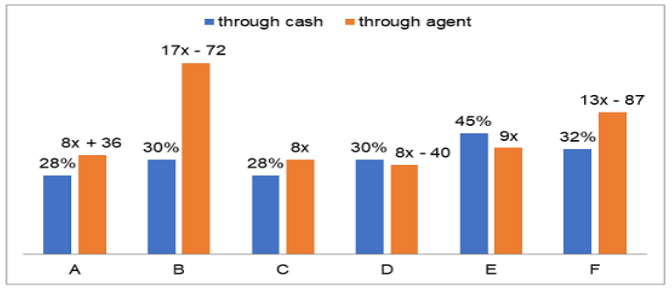
8. Number of people who like only Chinese and only Italian together are approximately how much percent more/less than number of people who only like South Indian.
A.23% B.29% C.35% D.41% E.None of these

9. Number of people who like only one type of food are how much more than number of people who like exactly two types of food?
A.730 B.720 C.750 D.740 E.None of these

10. Out of total number of people who like only Chinese, only South Indian and only Italian, 65%, 80% and 60% of people eat at the same restaurant. If the restaurant owner makes profit of Rs. 112, Rs. 123 and Rs. 152 on selling Chinese, South Indian and Italian dishes from each customer. Then find the total profit earned by the restaurant owner.
A.Rs. 77,898 B.Rs. 77,948 C.Rs. 77,984 D.Rs. 77,968 E.Rs. 77,994

Directions {11 – 15}: Answer the questions based on the information given below.
In a survey between a certain numbers of people, it was observed that the people paid bribes in six different departments (A, B, C, D, E and F) by three different means i.e. cash, through agent and in form of gifts. The pie chart given below shows the distribution (either in percentage or degree measures) of the number of people who paid bribe in the form of gifts.





The bar graph given below shows the percentage of people who paid bribe in the form of cash out of the total number of people who paid bribe, and the number of people who paid bribe through agent in each department.

Note: - 1. Total number of people who paid bribe through agent is 5507.
2. The number of people who paid bribe in the form of gift in department B are 12.5% more than the number of people who paid bribe through agent in department C.

11. What is the ratio of total number of people who paid bribe in department A to the same in department E? A.2:3 B.4:3 C.3:5 D.2:1 E.None of these

12. The number of people who paid bribe through cash in department F are how much percent more/less than the same in department D? A.54% B.32% C.52% D.42% E.None of these

13. What is the average number of people who paid bribe in the form of gifts in department A, C and D together? A.760 B.720 C.740 D.730 E.None of these

14. What is the difference between the number of people who paid bribe in department E through cash and number of people who paid bribe through agent in department B?
A.231 B.233 C.234 D.243 E.None of these

15. Average amount of sum paid as a bribe through cash in department B and department C is Rs. 1.5 lacs and Rs. 1.2 lacs respectively. Find the total amount of bribe paid through cash in department B and C together.
A.Rs. 208.6 million B.Rs. 224.4 million C.Rs. 231.4 million D.Rs. 221.4 million E.None

(16 – 19) Two Contractors Vishal and Sumit takes contract to fill five Swimming pools by opening different number of taps. Efficiency of every tap they open is same. Maximum number of taps a person can open for a single swimming pool is 50.

Pools	Number of taps placed by Vishal	Time taken by Vishal (in hours)	Number of taps placed by Sumit	Time taken by Sumit (in hours)
P	2A + 8	A	A + 4	40
Q	B + 12	B – 10	B – 2	30
R	40	C – 10	C/2	3C/2
S	1.5D	D – 4	30	D
T	2E	30	3E	E + 5

16. If Vishal uses 'E + 5' taps to fill pool P and after 8 hours he closed 4 taps, then how many more hours are required to fill the remaining pool P?
(A) 20 hours (B) 30 hours (C) 40 hours (D) 50 hours (E) None of these

17. If a contractor uses 'D - 4' taps to fill pool R and after 15 hours he also opened some extra taps such that the total time taken to fill pool E is 35 hours, then find the number of extra taps he opened. (A) 0.8 × B (B) 0.6 × C (C) 1.25 × A (D) 1.125 × D (E) None of these

18. Which of the statements given below are false? **I.** Total time taken by contractor Vishal and Sumit together to fill 60% of pool P is 8 hours. **II.** Total time taken by contractor Vishal and Sumit together to fill 50% of pool R is 10 hours. **III.** Total time taken by contractor Vishal and Sumit together to fill 75% of pool T is 9 hours. (A) Only I (B) Only II (C) Both I and III (D) Both II and III (E) None of these

19. Sumit start filling pool S with ___% less number of taps and after 18 hours he increase the number of taps by ___% such that he can fill the pool in next 8 hours. Which of the following options in the same order can satisfy the given blanks?
(A) 20% and 50% (B) 40% and 100% (C) 50% and 75% (D) 60% and 125% (E) None of these

{1 – 5}

56. (d); Total workers employed in all units in 2001
= 183 + 92 + 125 + 135 + 166 + 126 = 827
Total workers employed in all units in 2003
= 152 + 110 + 148 + 128 + 175 + 150 = 863
Required difference = 863 – 827 = 36

57. (a); Required Ratio $= \frac{125+135}{145+135} = \frac{260}{280} = \frac{13}{14}$

58. (b); Total workers employed in unit C throughout years
= 115 + 122 + 132 + 125 + 140 + 148 = 782
Total workers employed in E throughout years
= 140 + 152 + 158 + 166 + 170 + 175 = 961
Required percentage $= \frac{(961-782)}{961} \times 100 \approx 18.6\%$

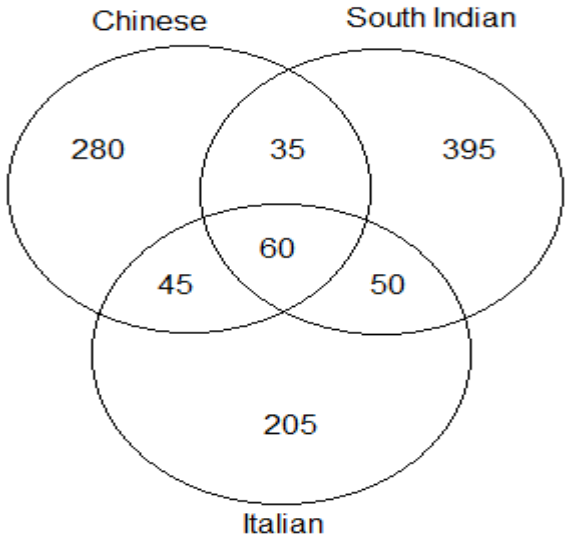
59. (b); Required average $= \frac{136+96+132+124+158+140}{6} = 131$

60. (a); Total workers employed by B
= 88 + 76 + 96 + 92 + 107 + 110 = 569
Total worker employed by all units in 2003
= 152 + 110 + 148 + 128 + 175 + 150 = 863
Required percentage $= \frac{569}{863} \times 100 \simeq 66\%$

{6 – 10}

Solution

Let number of people who like all three types of food be x
Number of people who like Chinese and Italian but not South Indian = 0.75x
Number of people who like South Indian and Italian but not Chinese = 0.75x + 5
Number of people who like both South Indian and Italian = x + 0.75x + 5 = 1.75x + 5
Number of people who like Chinese and South Indian = 1.75x + 5 – 15 = 1.75x – 10
Number of people who like Chinese and South Indian but not Italian = 1.75x – 10 – x = 0.75x – 10
Number of people who like Italian only = 6 × (0.75x – 10) – 5
The sum of number of people who like Chinese, South Indian and Italian = 1320
Number of people who like Italian = 6/22 × 1320 = 360
x + 0.75x + 0.75x + 5 + 6 × (0.75x – 10) – 5 = 360
x + 0.75x + 0.75x + 4.5x – 60 = 360
7x = 420
x = 60
Number of people who like Chinese and Italian but not South Indian = 0.75 × 60 = 45
Number of people who like South Indian and Italian but not Chinese = 0.75x + 5 = 45 + 5 = 50
Number of people who like Chinese and South Indian = 1.75x + 5 – 15 = 1.75x – 10 = 1.75 × 60 – 10 = 95
Number of people who like Chinese and South Indian but not Italian = 1.75x – 10 – x = 0.75x – 10 = 0.75 × 60 – 10 = 35
Number of people who like Italian only = 6 × (0.75x – 10) – 5 = 205



6.Solution
Desired number = 60
Hence, option d.

7. Solution
Desired Ratio = 35:45 = 7:9
Hence, option b.

8.Solution
Desired percentage = [(280 + 205 – 395)/395] × 100 = 22.78% ~ 23%
Hence, option a.

9.Solution
Number of people who like exactly one type of food = 280 + 395 + 205 = 880
Number of people who like exactly two types of food = 35 + 45 + 50 = 130
Desired Difference = 880 – 130 = 750.
Hence, option c.

10.Solution
Desired profit = 0.65 × 280 × 112 + 0.8 × 395 × 123 + 0.6 × 205 × 152 = 20384 + 38868 + 18696 = Rs. 77948
Hence, option b.

{11 – 15}

Solution

8x + 36 + 17x – 72 + 8x + 8x – 40 + 9x + 13x – 87 = 5507
63x – 163 = 5507
63x = 5670
x = 90
Number of people who paid bribe through agent in department C = 8x = 8 × 90 = 720
Number of people who paid bribe in the form of gift in department B = 1.125 × 720 = 810
Total number of people who paid bribe in the form of gifts = 810/(64.8/360) = 810/0.18 = 4500

Number of people who paid bribe

Departments	Through agent	In form of gifts	Total	Through cash
A	756	0.12 × 4500 = 540	(756 + 540)/0.72 = 1800	0.28 × 1800 = 504
B	1458	810	(1458 + 810)/0.70 = 3240	0.30 × 3240 = 972
C	720	0.20 × 4500 = 900	(720 + 900)/0.72 = 2250	0.28 × 2250 = 630
D	680	57.6/360 × 4500 = 720	(680 +720)/0.70 = 2000	0.30 × 2000 = 600
E	810	0.15 × 4500 = 675	(810 + 675)/0.55 = 2700	0.45 × 2700 = 1215
F	1083	0.19 × 4500 = 855	(1083 + 855)/0.68 = 2850	0.32 × 2850 = 912

11.Solution
Desired ratio = 1800:2700 = 2:3
Hence, option a.
12.Solution
Desired Percentage = [(912 – 600)/600] × 100 = 52%
Hence, option c.
13.Solution
Desired Average = (540 + 900 + 720)/3 = 720
Hence, option b.
14.Solution
Desired difference = 1458 – 1215 = 243
Hence, option d.
15.Solution
Desired amount of bribe = 1.5 × 972 + 1.2 × 630 = 1458 + 756 = Rs. 2214 lacs = Rs. 221.4 million
Hence, option d.
{16 – 19}
For Pool A,
(2A + 8) × A = (A + 4) × 40
2 × (A + 4) × A = (A + 4) × 40
A = 20
Capacity of Pool A = (20 + 4) × 40 = 24 × 40 = 960 unit
For Pool B, (B + 12)(B - 10) = (B - 2) × 30
B2 + 2B - 120 = 30B - 60 B2 - 28B - 60 = 0
(B - 30)(B + 2) = 0 B = 30
Capacity of Pool B = (30 - 2) × 30 = 28 × 30 = 840 unit For Pool C,
40 × (C - 10) = C/2 × 3C/2 40C - 400 = 3C2/4 3C2 - 160C + 1600 = 0
(3C - 40)(C - 40) = 0 C = 40
Capacity of Pool C = 40 × (40 - 10) = 40 × 30 = 1200 unit For Pool D,
1.5D × (D - 4) = 30 × D D - 4 = 20 D = 24
Capacity of Pool D = 30 × 24 = 720 unit For Pool E,
2E × 30 = 3E × (E + 5) E + 5 = 20 E = 15
Capacity of Pool E = 2 × 15 × 30 = 900 unit

Pool ➔	P	Q	R	S	T
Taps placed by Vishal	48	42	40	36	30
Time taken by Vishal (in hours)	20	20	30	20	30
Taps placed by Sumit	24	28	20	30	45
Time taken by Sumit (in hours)	40	30	60	24	20
Capacity of Pool	960	840	1200	720	900

16. Ans. (D)
Tap used by Vishal to fill pool P = 15 + 5 = 20
Time required to fill remaining pool = (960 - 20 × 8)/(20-4)
= (960 - 160)/16 = 800/16 = 50 hours
17. Ans. (C)
Tap used by contractor to fill pool R = 24 - 4 = 20
Number of extra taps opened = (1200 - 35 × 20)/(35 - 15)
= (1200 - 700)/20 = 500/20 = 25 = 1.25 × 20 = 1.25 × A
18. Ans. (E)
From Statement I, Time taken by Vishal and Sumit to fill 60% of pool P
= (0.6 × 960)/(48 + 24) = 576/72 = 8 hours (True)
From Statement II, Time taken by Vishal and Sumit to fill 50% of pool R
= (0.5 × 1200)/(40 + 20) = 600/60 = 10 hours (True)
From Statement III, Time taken by Vishal and Sumit to fill 75% of pool T
= (0.75 × 900)/(30 + 45) = 675/75 = 9 hours (True)
None of these
19. Ans. (A)
Option A, 30 × 0.8 × 18 + 30 × 0.8 × 1.5 × 8 = 432 + 288 = 720 (True)
Option B, 30 × 0.6 × 18 + 30 × 0.6 × 2 × 8 = 324 + 288 = 612 (False)
Option C, 30 × 0.5 × 18 + 30 × 0.5 × 1.75 × 8 = 270 + 210 = 480 (False)
Option D, 30 × 0.4 × 18 + 30 × 0.4 × 2.25 × 8 = 216 + 216 = 432 (False)
20% and 50%