**3.4 BAR CHARTS**

**Solution Exercise – Easy**

**1. (a)**

**Find the difference between FEI in 1998 relative to its**

**FEI in 1997. Hence, for India it is 0.72 – 1.71 = – 0.99.**

**For China it is 4.8 – 5.96 = – 1.16.**

**For Malaysia it is 9.92 – 10.67 = – 0.75 and for Thailand**

**it is 5.82 – 5.09 = 0.73.**

**Change in FEI in 1998 relative to its FEI in 1997.**

**For India, percentage =  = – 57.89%**

For Malaysia, percentage = **** = – 7.02%

For Thailand, change is 14.34%.

For China and Korea, changes are – 19.46% and 15.74% respectively.

Hence, we can see that the country with the largest

change in FEI is India.

2. (d)

Since the absolute values are not given, it cannot be

calculated.

3. (d)

Assume GDP of India for 1997 to be *x*.

For 1998, India’s FEI = **** = 0.7344*x*

And foreign equity inflows for 1997 = 1.71*x*

For China, assume GDP as y. Then FEI in 1998

**=** = 5.136*y*. And FEI in 1997 = 5.96*y*.

For South Korea, let GDP be *z*.

FEI in 1998 = **** = 2.375z and FEI in 1997

= 2.16*z*.

We can see that India and China were lower in 1998

than in 1997, and South Korea is higher in 1998 than

in 1997.

4. (c)

Let *x* be the foreign equity inflow of India. Hence,

China’s foreign equity inflow is 10*x*.

Now in 1998, FEI in India was 0.72, therefore

0.72 = ****

Similarly, FEI in China in 1998 was 4.8, therefore 4.8

4.8 = ****

Hence, (GDP of China/GDP of India)

= **** = 1.5

Thus, China’s GDP is 50% higher than that of India.

5. (c)

Average of Gautam:

2007 = (20 × 3) − (20 + 25) = 15

2008 = (25 × 3) − (25 + 30) = 20

2009 = (25 × 3) − (35 + 20) = 20

2010 = (30 × 3) − (40 + 20) = 30

6. (d)

In 2010, Sehwag has 40 and total is 30.

7. (b)

|  |  |  |
| --- | --- | --- |
|  | **2008** | **2009** |
| Total Runs | 1500 | 1500 |
| 4’s | 225 | 150 |
| 6’s | 100 | 150 |

Total sixes = 100 + 150 = 250

8. (c)

Average of Gautam in 2009

= ****

Average of Gautam in 2010

= ****

Change = 36.66 − 23.75 = 12.91

9. (d)

From the data we can see that the ratio is highest in 2010.

10. (c)

Total Runs scored = 16 [15 + 20 + 20 + 30] = 1360

11. (c)

Countries with more than 10% growth are China, Australia, Bangladesh and India.

% of total production in 2010

=  ****

12. (d)

The lowest increase is 0 and hence value cannot be determined.

13. (a)

Average in 2009 = 232.166

Average in 2010 = 268

Below average in 2009 = 3

Above average in 2010 = 3

Ratio = 1 : 1

14. (d)

The country with highest growth is Australia

% production = ****

15. (a)

Man-hours spent in coding is 420 + 100 = 520.

Now going by options, we see (a) is the only option.

16. (c)

Total work is approximately

(100 + 80) + (420 + 100) + (280 + 140) = 1120

On-site work = 80 + 100 + 140 = 320

Percentage of total work carried out on-site is

**** = 30% approxmately.

17. (c)

From figure the total effort in man-hours spent on-site

is 320.

It is nearest to actual man-hours of offshore testing

which is 280 (approximately.)

18. (a)

Total man-hours

= (100 + 80) + (420 + 100) + (280 + 140) = 1120.

Total working hours = 100

Total man working = ****= 11.2 = or 11.

For 50 hr the total man-hours is 50 × 11 = 550 which

is near to coding (420 + 100).

Hence, (a) is the answer

19. (b)

Total offshore work = 100 + 420 + 280 = 800 man-hours.

50% of offshore work are carried out on-site.

Distribution of effort are in ratio 180 : 520 : 420

9 : 26 : 21

Effort distributed to testing will be

**** = 147 man-hours.

Offshore testing work is **** = 140

∴ Proportion of testing carried out offshore is

 = 30%

20. (a)

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Design** | **coding** | **testing** |
| initially | 80 | 100 | 140 |
| finally |  |  |  |

**Solution Exercise – Medium**

**1. (b)**

**Number of voters voting for TAP**

**=** 

∴ Total population = 

2. (d)

People voting for TAP

In 1999 = 

In 2004 = 

In 2009 = 

In 2014 = 

Average = 

3. (c)

Let number of voters for TAP = *x*

Population of Delhi in 1999 = 

Population of Delhi in 2004 = 

Population of Delhi in 2009 = 

Population of Delhi in 2014 = 

Population of Delhi is alternatively decreasing and increasing.

4. (d)

Let the eligible voters = *x*

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Population** | **Voting for TAP** | **Difference** |
| 1999 | 1.42*x* | .55*x* | 0.87*x* |
| 2004 | 1.25*x* | .6*x* | 0.65*x* |
| 2009 | 1.42*x* | .5*x* | 0.92*x* |
| 2014 | 1.81*x* | .7*x* | 1.11*x* |

5. (d)

None of the years will show in consistency in data.

6. (c)

Population of Delhi is

1999 = 2.59*x*

2004 = 2.08*x*

2009 = 2.85*x*

2014 = 2.38*x*

7. (d)

Use the second bar chart. It is a visual inspection solution.

8. (d)

|  |  |
| --- | --- |
| **Countries** | **Runs scored (‘00)** |
| Australia | 0.4 × 10 + 0.3 × 5 + 0.3 × 15 = 10 |
| South Africa | 0.1 × 10 + 0.4 × 5 + 0.1 × 25 + 0.2 × 15 = 8.5 |
| Pakistan | 0.2 × 10 + 0.2 × 5 + 0.3 × 25 = 10.5 |
| Sri Lanka | 0.1 × 5 + 0.2 × 25 + 0.3 × 15 = 10 |
| Others | 0.3 × 10 + 0.4 × 25 + 0.2 × 15 = 16 |

9. (d)

It can be seen that whenever percentage share of runs against South Africa at any position decreases, the total runs during that position increases and vice versa with the only excepting being 5th position, year 2011.

So, the maximum change over the previous position must be during 5th position, year 2011 when its percentage share and total runs scored both have increased.

10. (d)

Maximum runs scored against other countries at 4th position, 2011 = 1800.

Minimum runs scored against Sri Lanka at 3rd position, 2009 = 50.

Hence, Maximum difference = 1800 − 50 = 1750

11. (a)

Earning in Pakistan in 2010 = 2000 × 0.2 + 1000 × 0.2 + 2000 × 0.3 = 1200

Earning in Pakistan in 2009 = 1000 × 0.2 + 500 × 0.2 + 2500 × 0.3 = 1050

Therefore, percentage change = 14.28%

**Solutions for 12** − **18:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **2012** | **2013** | **2014** | **2015** |
| **Total** | 720 | 864 | 1036.8 | 1244.16 |
| A | 57.6 | 77.76 | 51.84 | 136.85 |
| B | 216 | 328.32 | 445.82 | 485.22 |
| C | 158.4 | 207.36 | 238.46 | 423.01 |
| D | 208.8 | 155.52 | 228.09 | 87.09 |
| E | 79.2 | 95.04 | 72.57 | 111.97 |

12. (a)

Only Institutional donors and Govt. donations have shown an increase in each year.

13. (d)

There is no such category.

14. (d)

Govt. donations = 423.01 − 158.4 = 264.6

Institutional donors = 485.22 − 216 = 269.22

15. (c)

Donations from Charity functions and fundraisers have decreased.

16. (b)

The percentage increases are as follows:

A = 137.58% , B = 124.6%, C = 167.05% , E = 41.37%

17. (a)

Institutional donors in 2015 shows the highest value.

18. (c)

Total of Institutional donors = 1475.36

Total of Others = 358.78

Difference = 1116.58 crores

19. (b)

In year Y1 number of fours of team KKR = 70

Number of sixes = 0.4

Number of fours

Therefore, number of sixes = 0.4 × 70 = 28

Total number of fours and sixes = 98

In years Y2 number of fours = 80

Total number of sixes = 

Total number of fours and sixes = 280

Difference = 280 − 98 = 182

20. (c)

|  |  |
| --- | --- |
| **Teams** | **number of sixes in year y2** |
| CSK | 300 |
| KKR | 200 |
| RR | 49 |
| SRH | 70 |
| DD | 75 |
| RCB | 16 |

21. (a)

In Team RCB

Total number of sixes in year Y1

Total number of sixes = 0.71 × 200 = 142

Total number of sixes in year Y2 = 80 × 0.2 = 16

Total number of sixes = 0.625 × 10 = 10

Ratio =  = 14.2

22. (c)

Only statement (c) is false.

**Solution Exercise – Difficult**

**Solutions for 1 − 4:**

In any department in any given year; the average ages range

from 45 – 55 year.

I. When a 25 year old joins; the avg. dips by around 5 to

6 yrs.

II. When some 60 yrs old retires the avg. ages dips lesser

than in (I).

|  |  |
| --- | --- |
| **Marketing** | **Total Age** |
| 2000 | 49.33 × 3 = 148 |
| 2001 | 44 × 4 = 176 here one faculty joined, age 25. |
| 2002 | 45 × 4 = 180 |
| 2003 | 46 × 4 = 184 |

|  |  |
| --- | --- |
| **OB** | **Total Age** |
| 2000 | 50.5 × 4 = 202 |
| 2001 | 51.5 × 4 = 206 |
| 2002 | 52.5 × 4 = 210 |
| 2003 | 47.8 × 5 = 239 One faculty joined, age 25. |

|  |  |
| --- | --- |
| **Finance** | **Total Age** |
| 2000 | 50.2 × 5 = 251 |
| 2001 | 49 × 4 = 196 Year 2001 one faculty retired age 60. |
| 2002 | 45 × 5 = 225 One faculty joined age 25. |
| 2003 | 46 × 5 = 230 |

|  |  |
| --- | --- |
| **OM** | **Total Age** |
| 2000 | 45 × 6 = 270 |
| 2001 | 43 × 7 = 301 One faculty joined age 25. |
| 2002 | 44 × 7 = 308 |
| 2003 | 45 × 7 = 315 |

1. (a)

Clear from the data

2. (d)

From the data of 2000: Let that person be X, on April 1,

2000 (age of Naresh) + (age of Devesh) + (age of X)

= 49.33 × 3 = 148 yr.

Now ages of Naresh/Devesh on 1 Apr. - 2000 ≡



⇒ the age of X on 1-Apr-2000 is 47y + 3m + 10d

⇒ the X’s age on 1st April 2005 is ≡ (52y + 3m + 10d)

3. (c)

Read the notes in the beginning, the average age dips

twice (from 2000–2001) & from (2001–2002). The dip

is more when a 25 yr old joins and lesser when some-body retires.

4. (d)

New faculty joined in 2001, on 1 April, 2001 his age

was 25 yrs. So on April 1, 2003, his age is 28 years.

5. (b)

In 1999, total number of Naya mixer-grinder = 124

Number of Naya mixer-grinder disposed

= 20% of 30 = 6

Number of mixtures bought 124 − [50 + 24] = 50

6. (b)

Number of Naya mixer-grinder disposed in 1999 ⇒ 6

Number of Naya mixer-grinder disposed in 2000 ⇒10

Total disposed by end of 2000 = 16

7. (d)

Initial number of Purana mixer-grinder not available,

hence cannot be determined.

8. (a)

20 Purana mixer-grinder were purchased in 1999.

**Solution for 9 − 13:**

C = (A + B + C) + (C + D + E) − (A + B + C + D + E)

= (390 + 495) − (720)

= 165

D = (B + C + D) + (D + E + F) − (B + C + D + E + F)

= (450 + 435) − (675)

= 210

Now,

B + C + D = 450

⇒ B = 450 − 210 − 165

⇒ B = 75

A + B + C = 390

⇒ A = 390 − 75 – 165

⇒ A = 150

C + D + E = 495

⇒ E = 495 − 165 − 210

⇒ E = 120

D + E + F = 435

⇒ F = 435 − 120 − 210

⇒ F = 105

E + F + G = 420

⇒ G = 420 − 105 − 120

⇒ G = 195

F + G + H = 480

⇒ H = 480 − 195 − 105

⇒ H = 180

G + H + I = 525

⇒ I = 525 − 180 − 195

⇒ I = 150

H + I + J = 465

⇒ J = 465 − 150 − 180

⇒ J = 135

9. (b)

10. (d)

We can find the number of questions for all the subjects.

11. (d)

Statement I is false as B = 75 and E = 120

Statement II is true as C = 165 and E = 120

Statement III is false as A and B = 225 and D and E = 330

Statement IV is false as B and C = 240 and C and D = 375

So, 3 of the 4 statements are definitely false.

12. (d)

All the statements can be proven definitely true or false.

13. (a)

We do not require any further information.

**Solutions for 14** − **17:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Rank** | **Team** | **Matches** | **Points** | **Rating** |
| 1 | South Africa | 31 | 3839 | 124 |
| 2 | Australia | 40 | 4718 | 118 |
| 3 | England | 39 | 4063 | 104 |
| 4 | Pakistan | 30 | 3090 | 103 |
| 5 | New Zealand | 37 | 3660 | 99 |
| 6 | Sri Lanka | 34 | 3258 | 96 |
| 7 | India | 34 | 3228 | 95 |
| 8 | West Indies | 30 | 2272 | 76 |
| 9 | Bangladesh | 21 | 676 | 32 |
| 10 | Zimbabwe | 13 | 228 | 18 |

14. (b)

For England to have the least rating, they should loose all the matches they play. In total they are scheduled to play 14 test matches. Out of which when they play 3 test vs. West Indies and loose, they will have

Total points = (4063) − (3 × 92) = 3787 in 42 matches and hence will have a rating of 90, in all the next series they will play higher ranked team.

so, total points at end of schedule = (3787) − (11 × 46) = 3281

Rating = 

15. (a)

To make Australia Rank 1, let us say they win all their matches and South Africa loose all their matches. Final Rating will be

Australia = 

South Africa = 

They can be rank 1 without playing the series.

16. (d)

South Africa already is at rank 1. We have seen Australia can become rank 1. If we calculate for England considering it wins all the matches.

**England after West Indies series:**

Rating = 

**England after New Zealand Series:**

Rating = 

When England meet Australia, they have 98 rating points and in worst case scenario Australia will have 108 rating points. So, they will be above England.

**England vs. Australia series (considering England won all matches):**

Rating = 

**England vs. South Africa:**

Maximum Rating = 

So, England can finish at a maximum score of 97.

If South Africa looses all the matches.

Rating = 

England can win the championship.

New Zealand can also be Rank 1.

We do not need to check further.

17. (b)

The least rating England can get is 62 and the least rank will be 8th.