**3.3 TABLES**

**Solutions Exercise – Easy**

**Solutions for 1 − 5:**

1. (c)



⇒ 9.8 + 9.5 + 9.55 + 9.5 +  = 48

⇒  = 9.65

⇒ x = 9.7

2. (b)

E1 and E2 are the only athletes.

3. (a)

E5 = 

= 

E6 = 

E7 = 

A3 = 

4. (d)

The shortlisted candidates are A1, E1, E2, E3, E4 and A2. the winner cannot be determined as E2 and E3 have same score.

5. (a)

To maximize the score the athletes will choose an event from groups where there is only 1 or 2 events.

A1 = 9.62 + .07 = 9.69 (event J2)

E1 = 9.61 + .06 = 9.67 (event P1/ P2)

E2 = 9.60 + 0.06 = 9.66 (even/P2)

E3 = 9.59 + 0.08 = 9.67 (event Th1)

E4 = 9.58 + 0.07 = 9.65 (even P1/P2)

A2 = 9.55 + 0.1 = 9.65 (even T3)

E5 = 9.50 + 0.1 = 9.60 (event P1)

E6 = 9.43 + 0.18 = 9.61 (event P1)

E7 = 9.39 + 0.17 = 9.56 (event J1)

A3 = 9.37 + 0.15 = 9.52 (even J1)

So, the person with higher score is A1 (9.69).

**Solutions for 6 − 8:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **UG** | **Grad.** | **PG** | **Total** |
| **DTP** | 48 | 46 | 50 | 144 |
| **SME** | 18 | 8 | 70 | 96 |
| **Total** | 66 | 54 | 120 | 240 |

6. (b) ; 7. (b)

8. (d)

= 

**Solutions for 9 − 12:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **Air** | | **Water** | | **Noise** | | **Total** |
|  | **Value** | **% Share** | **Value** | **% Share** | **Value** | **% Share** |  |
| 1901 | 1.91 | 69.71% | 0.83 | 30.29% | - | - | 2.74 |
| 1911 | 4.8 | 68.38% | 2.22 | 31.62% | - | - | 7.02 |
| 1921 | 8.37 | 65.44% | 4.23 | 33.07% | 0.19 | 1.49% | 12.79 |
| 1931 | 14.94 | 66.70% | 6.95 | 31.03% | 0.51 | 2.27% | 22.4 |
| 1941 | 19.47 | 67.28% | 8.69 | 30.02% | 0.78 | 2.70% | 28.94 |
| 1951 | 22.56 | 63.75% | 11.73 | 33.14% | 1.1 | 3.11% | 35.39 |
| 1961 | 28.17 | 66.47% | 12.74 | 30.06% | 1.47 | 3.47% | 42.38 |
| 1971 | 32.31 | 65.74% | 15.11 | 30.74% | 1.73 | 3.52% | 49.15 |
| 1981 | 35.69 | 65.58% | 16.7 | 30.69% | 2.03 | 3.73% | 54.42 |
| 1991 | 45.91 | 69.13% | 18.13 | 27.30% | 2.37 | 3.57% | 66.41 |

9. (c)

Pollution in 2001 = (45.91 × 1.2) + (18.13 × 1.3) + (2.37 × 1.15) = 81.38 mpcc

10. (a) ; 11. (b)

12. (b)

I. Growth = 

II. Change = 

III. Annual growth rate =  = 25.81%

**Solutions for 13 − 15:**

13. (b)

MU5 − WH6

14. (a) ; 15. (a)

**Solutions for 16 − 20:**

16. (b)

There are 9 such players.

17. (a)

By subtracting the matches played by 9 nations from Total matches played, we can calculate others column. So, highest number of matches against others are played by Mahela.

18. (c)

India = 6 ; SL = 9

Aus = 4 ; Pak = 5

WI = 1 ; SA = 3

NZ = 2

Difference = 9 − 1 = 8

19. (d)

India =  = 336

Pakistan =  = 340.2

SL =  = 346.88

20. (a)

No. of matches against India = 1307

No. of matches against Australia = 1099

Difference = 1307 − 1099 = 208

**Solutions Exercise – Medium**

**Solutions for 1 − 4:**

Using the formula to calculate the GPA we can fill some components of the table as follows:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Name** | **Fin.** | **Mktg.** | **Stats.** | **Stra.** | **Ops.** | **GPA** |
| Aparna | F | B | F | F | C | 1.4 |
| Bikas | D | D | F | F |  |  |
| Chandra | B | D | A | F | F | 2.4 |
| Deepak | A | B | A | D | D | 3.2 |
| Fazal | D | F | B | B | D | 2.4 |
| Gowri | C | C | A | C | B | 3.8 |
| Hari |  | B | A |  | D | 2.8 |
| Ismet |  |  | B |  | A |  |
| Jagdeep | A | A | B | F | C | 3.8 |
| Kunal | F | C | A | F | F | 1.8 |
| Leena | B | A | D | B | F | 3.2 |
| Manab |  |  | A | B | B |  |
| Nisha | A | D | B | A | F | 3.6 |
| Osman | C | A | B | B | A | 4.6 |
| Preeti | F | D | A | D | A | 3.2 |
| Rahul | A | C | A | A | F | 4.2 |
| Sameer |  | C | F | B |  |  |
| Tara | B |  |  |  |  | 2.4 |
| Utkarsh | D | B | F | C | A | 3 |
| Vipul | A | F | C | C | F | 2.4 |

Also Tara will get B in two subjects and F in two subjects.

1. (a)

GPA of Preeti = 

⇒ X + Y + 4 = 16

⇒ X + Y = 12

Possible only when both X and Y are 6 and 6. Hence Preeti scored A in both Statistics and Operations.

2. (d)

In operations Tara could have received a grade of either B or F, which will can be equal to Manab out of the given options.

3. (b)

Gowri obtained a grade of C in strategy and her grade point was higher than that of Hari.

4. (c)

**Solutions for 5 − 8:**

We can find the totals from the given table as follows:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **States** | **Firm A** | **Firm B** | **Firm C** | **Firm D** |
| UP | 49 | 82 | 80 | 55 |
| Bihar | 69 | 72 | 70 | 65 |
| MP | 72 | 63 | 72 | 65 |
| Total | 190 | 217 | 222 | 185 |

From the given information we will be able to the following two cases:

|  |  |  |
| --- | --- | --- |
|  | **Case 1** | **Case 2** |
| Firm A | Truthful | Aggressive/ Honest |
| Firm B | Aggressive/ Honest | Profitable |
| Firm C | Aggressive/ Honest | Truthful |
| Firm D | Profitable Ltd. | Aggressive/ Honest |

5. (b)

If statement 1 is true then B will be Profitable and we will have case 2. In case 2 the statement 2 can never be true.

6. (c)

If statement is true then Aggressive will be B and we will have case 1. So, Honest is firm C and its lowest revenu is coming from Bihar and hence statement 2 is also true.

7. (c)

If statement 1 is true then we have case 1 and it this case statement 2 will be become false. If statement 2 is true then we have case 2 and statement 1 will be false. Hence atmost 1 of

the statements can be true.

8. (c)

Based on the given information we will get case 1 and according to it Truthful will have its lowest revenue in UP.

**Solutions for 9 − 12:**

9. (a)

As the diet should contain 10% minerals and only two ingredients contain 10% minerals i.e. O and Q. Hence only by mixing O and Q a diet with 10% minerals can be formed. Hence, there is only one way.

10. (d)

The required diet can be formed by mixing P and S or Q and S only but the lowest cost per unit can be achieved by Q and S only.

11. (d)

To make a diet with atleast 60% carbohydrates we can use option (2) or (5) only but the lowest cost per unit can be achieved when P, Q and S are mixed in the ratio 4 : 1 : 1.

12. (d)

As the ingredients are fixed in equal amounts, so we can take the average of the constituent percentage of the elements used. Only option O and S satisfies all the conditions.

**Solutions for 13 − 15:**

**P = Production ; Pop. = Population ; Pro. = Productivity ;**

**PC = Per Capita ; P (PM) = Production (Per Million)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Country** | **Area** | **% Area** | **P** | **Pop.** | **Pro.** | **PC** | **P**  **(PM)** |
| Brazil | 8.51 | 20 | 2.72 | 203.99 | 1.60 | 0.013 | 13333.99 |
| Vietnam | 0.33 | 60 | 1.65 | 90.73 | 8.33 | 0.018 | 18185.83 |
| Colombia | 1.14 | 20 | 0.69 | 48.02 | 3.03 | 0.014 | 14369.01 |
| Indonesia | 1.9 | 60 | 0.41 | 255.46 | 0.36 | 0.002 | 1604.95 |
| Ethiopia | 1.1 | 50 | 0.39 | 90.07 | 0.71 | 0.004 | 4329.97 |
| India | 3.16 | 80 | 0.3 | 1267.98 | 0.12 | 0.002 | 236.60 |
| Mexico | 1.96 | 80 | 0.27 | 121.01 | 0.17 | 0.002 | 2231.22 |
| Guatemala | 0.1 | 60 | 0.24 | 15.8 | 4.00 | 0.015 | 15189.87 |
| Peru | 1.28 | 80 | 0.21 | 31.15 | 0.21 | 0.007 | 6741.57 |
| Honduras | 0.11 | 40 | 0.16 | 8.72 | 3.64 | 0.018 | 18348.62 |
| Uganda | 0.24 | 70 | 0.15 | 34.85 | 0.89 | 0.004 | 4304.16 |
| Côte d’Ivoire | 0.32 | 50 | 0.14 | 22.671 | 0.88 | 0.006 | 6175.29 |
| Costa Rica | 0.05 | 70 | 0.1 | 4.77 | 2.86 | 0.021 | 20964.36 |
| El Salvador | 0.02 | 80 | 0.08 | 6.4 | 5.00 | 0.013 | 12500.00 |

13. (b) ; 14. (a) ; 15. (b)

**Solutions for 16 − 20:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1st Floor (6474)** | | | **2nd Floor (8272)** | | | **3rd Floor (5027)** | | | **4th Floor (6975)** | | | **5th Floor (4814)** | | |
|  | A | S | F | A | S | F | A | S | F | A | S | F | A | S | F |
| Feb | 6160 | 2500 | 10134 | 3810 | 1060 | 11022 | 3150 | 3130 | 5047 | 8560 | 3960 | 11575 | 6545 | 8160 | 3199 |
| Mar | 9530 | 4540 | 15124 | 6570 | 9960 | 7632 | 7000 | 6610 | 5437 | 1630 | 2740 | 10465 | 7730 | 4260 | 6669 |
| Apr | 3690 | 4480 | 14334 | 4300 | 5360 | 6572 | 2950 | 4800 | 3587 | 9370 | 3470 | 16365 | 2659 | 8420 | 908 |
| May | 3920 | 3220 | 15034 | 2340 | 8080 | 832 | 2100 | 4640 | 1047 | 9430 | 7130 | 18665 | 9470 | 3150 | 7228 |
| Jun | 20 | 6660 | 8394 | 7610 | 4800 | 3642 | 2140 | 1900 | 1287 | 7480 | 8570 | 17575 | 4568 | 7330 | 4466 |
| July | 6180 | 7730 | 6844 | 7600 | 5600 | 5642 | 5989 | 6180 | 1096 | 1040 | 1280 | 17335 | 3436 | 5370 | 2532 |
| Aug | 4460 | 480 | 10824 | 5220 | 5460 | 5402 | 6950 | 7998 | 48 | 1540 | 9030 | 9845 | 2251 | 4590 | 193 |

16. (a)

17. (c)

18. (b)

= 

19. (b)

20. (a)

17575 − 6975 = 10600

**Solutions Exercise – Difficult**

**Solutions for 1 − 4:**

L = London, Paris = P, New York= NY, Beijing = B

In round III, one of the two cities, either London or Paris will get 38 votes and the other 37. Further:

I. The persons representing London, Paris, Beijing and New York cannot vote as long as their own cities are in contention. In round I, New York gets eliminated and hence the representative from NY becomes eligible for voting in the II round hence increasing the total votes by 1. This means the total votes in the first round must be 83 – 1 = 82.

II. After round II, the representative from Beijing votes in the III round. This should have increased the number of total votes by 1 and the total votes must have become 83 + 1 = 84. We are given that the total votes in round III are 75 only. We conclude that 84 – 75 = 9 people who voted in round I and II have become ineligible for voting in round III.

III. 9 people who have voted in round I and II become ineligible for voting in round III. The reason of their ineligibility is that till round I and II, they have already voted for two different cities which are not available for contention in round

IV. All of these 9 voters are those who voted for NY in round I and then voted for Beijing in round II.

V. Beijing’s vote in round II is 21. This includes 9 votes from people who voted for NY in the first round. So 21 – 9 = 12 people voted for Beijing in both round I and II.

VI. We are given that 75% of the people who voted for Beijing in round I, voted again for Beijing in round II as well. So, 16 people must have voted for Beijing in round I.

VII. In round I we have: 82 = L + P + B + NY or 82 = 30 + P + 16 + 12. Giving P = 24

VIII. In round II we have: 83 = L + 32 + 21, giving L = 30

IX. NY had 12 votes in round I. 9 of these votes went to B (see point 2, again). The rest 3 went to P.

X. 16 votes for B in round I. 12 of them still vote for B. The rest 4 voted for either L or P. As L has the same number of votes in both the rounds I and II. This means in round II, these 4 votes must have gone to Paris only.

XI. The representative from NY did not vote in round I but has voted in round II. As L has the same people voting for it (30 votes in both the rounds I and II) and we know the exact break up of B in II. This NY-representative vote must go to Paris only. Further, in order to avoid ineligibility, this NY rep must vote for Paris only in round III also.

XII. Paris (in round II) break up is: 32 = 24 ( from round I, who voted for Paris ) + 4 ( out of the 16, who voted for Beijing in round I) + 3( out of 12, who voted for NY in round I ) + 1 (NY -Rep)

XIII. Beijing gets eliminated in round II. So the rep of Beijing can vote in round III.

XIV. 12 People (out of 21) who voted for Beijing in round II are still eligible for vote in round III.

XV. 50% of people who voted for Beijing in I (i.e. 8 People) voted for Paris in round III. These 8 People include 4 of those who voted for Paris in round II also. Therefore 4(out of 12 who voted for Beijing in round II and are still eligible for vote in round III ) people have voted for Paris in round III.

XVI. This implies that the rest 8(out of 12 who voted for Beijing in round II and are still eligible for vote in round III can vote for London only. This makes London’s vote = 30+ 8 or 38 in round III, implying that Paris got 37 votes.

XVII. The Beijing Rep who is eligible to vote in round III must have voted for Paris only.

The following table sums up the Vote Pattern:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Round** | **Total Votes** | **London (L)** | **Paris (P)** | **Beijing (B)** | **New York (NY)** |
| I | 82 | 30 | 24 | 16 | 12 |
| II | 83 | 30 | 32 (24 + 4 + 3 + NY rep) | 21 (12 + 9) | - |
| III | 75 | 38 (30 + 8) | 37 (32 + 4 + B rep) | - | - |

1. (d)

 = 75%

2. (d)

3. (d)

 = 66.67%

4. (a)

**Solutions for 5 − 7:**

5. (c)

**Statement I**

Success rate of graduates 2013 =  = 1.02%

Success rate of post graduates 2013 =  = 1.18%

**Statement II**

Success rate of post graduates 2012 =  = 0.84%

Success rate of post graduates 2013 =  = 1.18%

6. (d)

**Statement I**

Post graduates selected in 2012 =  = 28.6%

Graduates selected in 2012 =  = 0.29%

**Statement II**

Graduates in 2012 =  = 28.27%

Post Graduates in 2012 =  = 41.66%

7. (a)

**Statement I**

Absentess 2012 in post graduates =  = 18.5%

Absentess 2013 in post graduates =  = 11.59%

**Statement II**

Absentess 2013 in graduates =  = 4.59%

Absentess 2013 in post graduates =  = 11.59%

**Solutions for 8 − 12:**

8. (c)

AUD = 

9. (d)

USD = 

GBP = 

AUD = 

AED = 

SAR = 

KWD = 

CHF = 

10. (b)

1 Euro = 1.372 USD

⇒ 1000 Euro = 1372 USD

Now in **March**:

1 Euro = 1.380 USD

1 Euro = 1.546 AUD

⇒ 1.380 USD = 1.546 AUD

⇒ 1372 USD = **** × 1372 AUD

⇒ 1537 AUD (apprrox.)

Now in **May**:

1.441 AUD = 1 Euro

1537 AUD = × 1537

= 1066.62 Euros

% gain =  = 6.62%

11. (d)

= 

= 2981 Euros (approx.)

12. (b)

Monthly growth rate of SAR = 

Monthly growth rate of KWD =

Exchange rate of SAR in June = 5.130 × 1.001025

= 5.135

Value of 1 SAR = 

Exchange rate of KWD in June = 0.385 × 1.00387 = 0.386

Value of 1 KWD = 2.587 Euros

Difference = 2.393 Euros

**Solutions for 13 − 16:**

Before proceeding to the question let us first see the three cost table for 3 different times in the year. We will use these tables to answer the question.

● For the months of January to March

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Call made to Customer of** | **Airtel** | **Vodafone** | **Idea** | **Aircel** | **BSNL** | **Reliance** | **Tata** | **MTNL** | **Spice** | **MTS** |
| Airtel | 30 | 100 | 120 | 60 | 80 | 150 | 200 | 60 | 150 | 200 |
| Vodafone | 120 | 20 | 210 | 70 | 90 | 190 | 110 | 140 | 170 | 220 |
| Idea | 160 | 100 | 50 | 140 | 100 | 140 | 90 | 170 | 190 | 180 |
| Aircel | 70 | 120 | 160 | 60 | 110 | 180 | 160 | 210 | 80 | 140 |
| BSNL | 80 | 100 | 140 | 200 | 40 | 160 | 110 | 50 | 180 | 80 |
| Reliance | 220 | 110 | 120 | 80 | 170 | 80 | 120 | 80 | 110 | 140 |
| Tata | 130 | 80 | 120 | 130 | 220 | 170 | 110 | 250 | 130 | 200 |
| MTNL | 110 | 90 | 120 | 140 | 160 | 220 | 160 | 80 | 240 | 130 |
| Spice | 280 | 160 | 170 | 220 | 220 | 230 | 170 | 180 | 160 | 150 |
| MTS | 140 | 140 | 170 | 100 | 170 | 270 | 140 | 130 | 110 | 90 |

● For the month of April to June: For these months we have to make a table in which cost of call between the players of cartel PSU is 50 paisa and the cost of call between the players of cartel Service will be slashed by 20% and rest cost will remain the same. So, the table looks like follows:-0

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cartel** | **Call made to**  **Customer of** | **Airtel** | **Vodafone** | **Idea** | **Aircel** | **BSNL** | **Reliance** | **Tata** | **MTNL** | **Spice** | **MTS** |
| **PSU** | BSNL | 80 | 100 | 140 | 200 | 50 | 160 | 110 | 50 | 180 | 80 |
| MTNL | 110 | 90 | 120 | 140 | 50 | 220 | 160 | 50 | 240 | 130 |
| **Service** | Airtel | 24 | 80 | 96 | 48 | 80 | 120 | 160 | 60 | 120 | 160 |
| Vodafone | 96 | 16 | 168 | 56 | 90 | 152 | 88 | 140 | 136 | 176 |
| Idea | 128 | 80 | 40 | 112 | 100 | 112 | 72 | 170 | 152 | 144 |
| Aircel | 56 | 96 | 128 | 48 | 110 | 144 | 128 | 210 | 64 | 112 |
| Reliance | 176 | 88 | 96 | 64 | 170 | 64 | 96 | 80 | 88 | 112 |
| Tata | 104 | 64 | 96 | 104 | 220 | 136 | 88 | 250 | 104 | 160 |
| Spice | 224 | 128 | 136 | 176 | 220 | 184 | 136 | 180 | 128 | 120 |
| MTS | 112 | 112 | 136 | 80 | 170 | 216 | 112 | 130 | 88 | 72 |

● For the month of July to December: The two cartels exist with a new cartel being formed. The table will now look like:-

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Carte** | **Call made to**  **Customer of** | **Airtel** | **Vodafone** | **Idea** | **Aircel** | **BSNL** | **Reliance** | **Tata** | **MTNL** | **Spice** | **MTS** |
| **PSU** | BSNL | 80 | 100 | 140 | 200 | 50 | 160 | 110 | 50 | 180 | 80 |
| MTNL | 110 | 90 | 120 | 140 | 50 | 220 | 160 | 50 | 240 | 130 |
| **Quality** | Reliance | 220 | 110 | 120 | 80 | 170 | 48 | 72 | 80 | 110 | 140 |
| Tata | 130 | 80 | 120 | 130 | 220 | 102 | 66 | 250 | 130 | 200 |
| **Service** | Airtel | 24 | 80 | 96 | 48 | 80 | 150 | 200 | 60 | 120 | 160 |
| Vodafone | 96 | 16 | 168 | 56 | 90 | 190 | 110 | 140 | 136 | 176 |
| Idea | 128 | 80 | 40 | 112 | 100 | 140 | 90 | 170 | 152 | 144 |
| Aircel | 56 | 96 | 128 | 48 | 110 | 180 | 160 | 210 | 64 | 112 |
| Spice | 224 | 128 | 136 | 176 | 220 | 230 | 170 | 180 | 128 | 120 |
| MTS | 112 | 112 | 136 | 80 | 170 | 270 | 140 | 130 | 88 | 72 |

13. (d)

Month has not been mentioned in this case. So, we don’t know that these 10 lakh minutes are in which month. The problem is that there are different rates for different periods of year.

14. (b)

If we see the service providers for which this happens in the period of April to

June are as follows:-

Tata – Tata to Tata cost is 88 paisa while Tata to Vodafone cost is 64 paisa.

Spice – Spice to Spice cost is 128 paisa while Spice to MTS cost is 120 paisa.

15. (b)

For finding the answer to this question we can assume any number of minutes because the number of minutes remains same in both the cases. Let us say the total calls are for 2 minutes in both the cases. So if MTS customer calls only MTS in November then the revenue for MTS will be = 2 × 72 = 144 paisa

In the second case 1 minute is to the MTS and 1 minute is to the Aircell, then the total revenue will be = 72 + 80 = 152 paisa.

So there is a loss of 

16. (a)

To maximize the minutes we need to choose 3 service providers to whom call from the Airtel subscribers is the cheapest. Those 3 are Aircell, MTNL, BSNL or Vodafone. We need 3 but there are 4, still the answer is determinable as BSNL and Vodafone have same rates so the minutes will be same. If it would have not been same then answer would have been indeterminable.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Calls Made to** | **% of Revenue** | **Value of Revenue** | **Cost per minute** | **Number of minutes** |
| Airtel | 40% | 800000 | 24 | 3333333 |
| Aircell | 30% | 600000 | 48 | 1250000 |
| MTNL | 20% | 400000 | 60 | 666667 |
| BSNL/Vodafone | 10% | 200000 | 80 | 250000 |
| **Total** | | | | 5500000 |

**Solutions for 17 − 20:**

According to the information given let us first see few formulas and then we can draw a table for revenues, profits, cash surplus and cumulative stock at end of each year.

Total production cost = Fixed Cost + (Cost of each unit of body \* 2 \* production) + (Cost of each unit of engine \* 3 \* production)

Total revenues = Selling Price \* Sales

Cumulative Stock = (Cumulative Stock of previous year + Production – Sales)

Cash Surplus = (Cash Surplus of previous year + Revenue – Cost)

Also they have a cash surplus of 10 million and there is no cumulative stock at the starting of year 2001.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** |
| Cumulative Stock  (year end) | 3000 | 6000 | 4000 | 7000 | 8000 | 1000 | 3000 | 6000 | 7000 | 3000 |
| Total Production  Cost (millions) | 195 | 234 | 425 | 423.4 | 571.25 | 466 | 464 | 480 | 422.2 | 353.75 |
| Total Selling  Revenues (millions) | 240 | 200 | 484 | 345 | 576 | 570 | 420 | 420 | 420 | 532 |
| Total Profit at end of year  (millions) | 45 | − 34 | 59 | − 78.4 | 4.75 | 104 | − 44 | -60 | − 2.2 | 178.25 |
| Cash Surplus  (millions) | 55 | 21 | 80 | 1.6 | 6.35 | 110.35 | 66.35 | 6.35 | 4.15 | 182.4 |

17. (d) ; 18. (b) ; 19. (a)

20. (c)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **2001** | **2002** | **2003** | **2004** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** |
| Cumulative Stock  (year end) | 3000 | 6000 | 4000 | 7000 | 8000 | 1000 | 3000 | 6000 | 7000 | 3000 |
| Percentage Change | N.A. | 100.00% | – 33.33% | 75.00% | 14.29% | – 87.50% | 200.00% | 100.00% | 16.67% | – 57.14% |