# N Solutions- Difficult Test

**Solutions for question 1 to 4:**

**Udupi (Spinning yarn)**

Number of spindles = 20000
Production per spindle per year = 1500 metres
Total satin cloth production = 20000 × 1500 = 30,000,000 metres
Out of the total 30% is exported i.e. 9,000,000 metres is exported and rest 21,000,000 is sold domestically. Also the selling price in domestic market is Rs. 20 and in export market its 200% more than the domestic market i.e. Rs. 60 in the export market. The table below sums us the scenario.

| Market | Cloth Sold (metres) | Selling Price (Rs.) | Revenue (Rs.) |
|---|---|---|---|
| Domestic | 21000000 | 20 | 420,000,000 |
| Export | 9000000 | 60 | 540,000,000 |
| **Total** | 30000000 | | 960,000,000 |

**Latur (Wool garments)**

Quantity of wool procured = 1500000 pounds
Cost of wool = Rs. 90 per pound
Total cost of wool = Rs. 135,000,000
Wool used for one garment = 1.5 pounds
Number of woolen garments that can be manufactured = 1000000
Selling price of one garment = Rs. 200
Total revenue earned = Rs. 200,000,000
Profit earned = Rs. 200000000 – 135000000 = Rs. 65000000

**Waluj (Jeans Shop)**

Cost of 1 kilogram of raw material = Rs. 1000
Raw material gets waste = 20% = 200gms.
Raw material available for jeans = 800gms.
Number of jeans that can be made = 4.
Cost of tailoring of 1 jeans = Rs. 100
Cost of tailoring for 4 jeans = Rs. 400.
Total cost = Rs. 1000 + Rs. 400 = Rs. 1400
Total selling price = Rs. 350 × 4 = Rs. 1400

**1. (b)** Revenue will be 96 crore

**2. (d)** As cost is not known, hence profit cannot be calculated.

3. (a) : Profit earned at present = Rs. 65,000,000
New cost of wool = Rs. 120 per pound. So the total cost is now Rs. 180,000,000. As the revenue is same hence the new profit will be Rs. 20,000,000. So there is decrease of Rs. 45,000,000 which is a 70% decrease approx.

4. (a) : Total satin cloth production = 20000 × 1500 = 30,000,000 metres
If only 80% production is then satin cloth = 24,000,000 metres
Out of this 30% production is exported = 7,200,000 metres.
So, total revenue will be now = Rs. 432,000,000
The revenue with full production is Rs. 540,000,000
Hence, there is a decrease of 20%.

Short cut method: If production decreases by x% then be it domestic or export the quantity will decrease by 20% as the both are a part of total production. And as price is constant so revenue change will be same as the production change.

**Solutions for question 5 to 8:**

5. (b) : We need to find the total trade by P3 Total trade by P3 = total exports by P3 + total imports by P3. To find the total exports we will see the row of P3, those will be the total exports. While the imports will be the exports of others to P3, so if we see all the values of row of P3 then that will total up to his imports.
Total trade by P3 = (total exports) + (total imports)
= (17 + 9 + 15 + 7 + 24) + (40 + 35 + 28 + 53 + 57)
= 285
Now to find the total trade between P3 and P2 we will add the exports of P3 to P2 and exports of P2 to P3 (imports of P3 from P2). The value comes out to be = 9 + 35 = 44
As we know in a pie total angle is 360 degree. So total trade of 285 it 360 degrees. So the angle subtended at center by total trade of P3 and P2 is

6. (d) :

| Player 1 | Player 2 | Export of Player 1 to 2 | Export of Player 2 to 1 | Winner |
|---|---|---|---|---|
| P1 | P2 | 50 | 35 | P1 |
| P1 | P4 | 40 | 17 | P1 |
| P1 | P4 | 44 | 70 | P4 |
| P1 | P5 | 57 | 98 | P5 |
| P1 | P6 | 68 | 35 | P1 |
| P2 | P3 | 35 | 9 | P2 |
| P2 | P4 | 58 | 32 | P2 |
| P2 | P5 | 43 | 64 | P5 |
| P2 | P6 | 59 | 25 | P2 |
| P3 | P4 | 15 | 28 | P4 |
| P3 | P5 | 7 | 53 | P5 |
| P3 | P6 | 24 | 57 | P6 |
| P3 | P5 | 68 | 45 | P4 |
| P3 | P6 | 35 | 62 | P6 |
| P5 | P6 | 52 | 35 | P5 |

| Rank | Player | Number of times Winner | Points |
|---|---|---|---|
| 1 | P5 | 4 | 8 |
| 2 | P1 | 3 | 6 |

| | | | |
|---|---|---|---|
| 2 | P2 | 3 | 6 |
| 2 | P4 | 3 | 6 |
| 4 | P6 | 2 | 4 |
| 5 | P3 | 0 | 0 |

We cannot determine the answer as there is a tie between 3 players and we do not know how to break that tie.

7. (d) : From the table above.
8. (a) : From the table above.

**Solutions for questions 9 to 12:**
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.
**Note:**
**CS** Cumulative Stock (year end)
**TPC** Total Production Cost (in millions)
**TSR** Total Selling Revenues (in millions)
**TP** Total Profit at end of year (in millions)
**CSP** Case Surplus (in millions)

| Years | CS | TPC | TSR | TP | CSP |
|---|---|---|---|---|---|
| 2011 | 3000 | 195 | 240 | 45 | 55 |
| 2012 | 6000 | 234 | 200 | −34 | 21 |
| 2013 | 4000 | 425 | 484 | 59 | 80 |
| 2014 | 7000 | 423.4 | 345 | −78.4 | 1.6 |
| 2015 | 8000 | 571.25 | 576 | 4.75 | 6.35 |
| 2016 | 1000 | 466 | 570 | 104 | 110.35 |
| 2017 | 3000 | 464 | 420 | −44 | 66.35 |
| 2018 | 6000 | 480 | 420 | −60 | 6.35 |
| 2019 | 7000 | 422.2 | 420 | −2.2 | 4.15 |
| 2020 | 3000 | 353.75 | 532 | 178.25 | 182.4 |

**9. (b) ;**

**10. (a)**

11. (c) :

| Years | Cumulative Stock (year end) | Percentage Change |
|---|---|---|
| 2011 | 3000 | NA |
| 2012 | 6000 | 100.00% |
| 2013 | 4000 | −33.33% |
| 2014 | 7000 | 75.00% |
| 2015 | 8000 | 14.29% |
| 2016 | 1000 | −87.50% |
| 2017 | 3000 | 200.00% |
| 2018 | 6000 | 100.00% |
| 2019 | 7000 | 16.67% |
| 2020 | 3000 | −57.14% |

12. (b) :

| Years | Cash Balance Status | Percentage Change |
|---|---|---|
| 2011 | 55 | 450.00% |
| 2012 | 21 | −61.82% |
| 2013 | 80 | 280.95% |
| 2014 | 1.6 | −98.00% |
| 2015 | 6.35 | 296.88% |
| 2016 | 110.35 | 1637.80% |
| 2017 | 66.35 | −39.87% |
| 2018 | 6.35 | −90.43% |
| 2019 | 4.15 | −34.65% |
| 2020 | 182.4 | 4295.185 |

**Solution for question 13 to 16:**

13. (d) :

| | **Day 1** | **Day 2** | **Day 3** | **Day 4** | **Day 5** |
|---|---|---|---|---|---|
| Start Price | 100 | 90 | 100 | 110 | 120 |
| End Price | 90 | 80 | 110 | 120 | 110 |

Let initial amount with T1 and T2 is $Y$.
Total money with T1 = $Y$ – 900 + 1000 + 1100 + 1200 – 1100 = $Y$ + 1300
Total money with T2 = $Y$ + 1200
Therefore difference between T1 and T2 is Rs. 100 and Number of shares with T2 and T1 is same.

14. (b) :

| | **Day 1** | **Day 2** | **Day 3** | **Day 4** | **Day 5** |
|---|---|---|---|---|---|
| Start Price | 100 | 90 | 100 | 110 | 100 |
| End Price | 90 | 100 | 110 | 100 | 100 |

Let initial amount with T1 and T2 is $Y$.
Total Money with T1 = $Y$ – 900 + 1000 + 1100 + 1200 – 1100 = $Y$ + 1300
Total money with T2 = $Y$
Therefore, T1 ended up with Rs. 1300 more cash than T2.
Therefore at the end of day 4 the price of share is Rs.100.

15. (d) :

| | **Day 1** | **Day 2** | **Day 3** | **Day 4** | **Day 5** |
|---|---|---|---|---|---|
| Start Price | 100 | 110 | 120 | 130 | 120 |
| End Price | 110 | 120 | 130 | 120 | 110 |

Let initial amount with T1 and Michal is .
T1 sold shares on Day 1, Day 2, Day 3, whereas buys shares on Day 4 and Day 5.
Total money with T1 is = $Y$ + 110 × 10 + 120 × 10 + 130 × 10 – 120 × 10 – 110 × 10 = $Y$ + 1300
Total money with T2 = $Y$ + 1200
Total money with T2 = $Y$ + 120 × 10 + 130 × 10 + 120 × 10 = $Y$ + 3700
Total money with T2 & T1 = 2$Y$ + 5000.
Therefore maximum possible increase is 5000.

16. (a) :

| | **Day 1** | **Day 2** | **Day 3** | **Day 4** | **Day 5** |
|---|---|---|---|---|---|
| Start Price | 100 | 90 | 80 | 90 | 100 |
| End Price | 90 | 80 | 90 | 100 | 110 |

Assume initial number of share with T1 and T2 is *X*. In the above table T1 by 10 share each on day 1, day 2 and sold 10 shares and day 3, day 4 and day 5.

Total share with T1 is $X - 10$.

In the above T2 buy share only on day 2.

Total shares with T2 is $X + 10$.

T2 had 20 shares more than T1.

Therefore at the end of day 3 the price of share is Rs. 90.

**Solutions for questions 16 to 20:**

| States | Firm – A | Firm – B | Firm – C | Firm – D |
|---|---|---|---|---|
| S1 | 49 | 82 | 80 | 55 |
| S2 | 69 | 72 | 70 | 65 |
| S3 | 72 | 63 | 72 | 65 |
| **Total** | 190 | 217 | 222 | 185 |

17. (b) : As F3. has highest market share hence Truthful Ltd. can be *A* or *C*. From neutral statement either *B* and *C* are aggressive and honest or *A* and *D* are aggressive and honest. According to statement (I), *B* is profitable,then A and *D* are aggressive and honest. Then honest total revenue cannot be more than that of profitable, hence statement (II) is false.

18. (c) : According to statement (I) aggressive is (*B*). Then F1. has to be *C* (as given in neutral statement). Then statement (II) is also true, F1's lowest revenue is from Bihar.

19. (c) : *B* is honest according to Statement (I) Atmost only one statement can be true as both give Aggressive and Honest as firm B.Firm B cannot have two names.

20. (c): Profitable can be either *A* or *D*. Then aggressive and honest has to be *B* and *C*. Hence, truthful is *A* or *D*. And for both *A* and *D* lowest revenue is from S1

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