

SECTION - II

The explanatory answers are based on the question and option order in Set 333.
Please refer to the table for tracking the questions in other sets.

26. Total cost of hysterectomy including poor quality in India
 $= 5500 + 5 \times 1000 = 8000$ US dollars.
 Total cost in Thailand for the same = 10500 US dollars
 Difference = 2500 US dollars
 $= 2500 \times 32.89$
 $= 82225$ Bahts.
 Travelling to India and coming back costs 15000 Bahts.
 \therefore Total difference = $82225 - 15000$
 $= 67225 \approx 67500$
 Hence, [4].
27. Cost of knee replacement including poor quality in the four countries in US dollars:
 India - 17500 US dollars
 Malaysia - 12000 US dollars
 Thailand - 16000 US dollars
 Singapore - 17000 US dollars
 It is most expensive in India.
 Hence, [1].
28. Total cost of angioplasty, hip replacement and a knee replacement, including cost of poor quality in the four countries in US dollars:
 India - $28500 + 21000 = 49500$ US dollars
 Thailand - $35000 + 16000 = 51000$ US dollars
 Singapore - $38000 + 13000 = 51000$ US dollars
 Malaysia - $29000 + 18000 = 47000$ US dollars
 \therefore Cheapest is in Malaysia.
 Hence, [3].
29. It is not mentioned in the question that the cost of poor quality is to be considered. Hence, difference is calculated only on the cost of surgery.
 Spinal fusion in India costs $\frac{5500 \times 40.928}{35} = 6431.54 \approx 6432$ US dollars.
 Spinal fusion cost 9000 US dollars in Singapore.
 \therefore Difference is $9000 - 6432$
 $= 2568$ US dollars ≈ 2500 US dollars.
 Hence, [2].

Answers to questions 30 to 34:

From the given data, we get the following different routes, their distances and prices from city A to city J.

Route	Distance (km)	Price (Rs)
ABJ	2860	2945
ABHJ	2710	2995
ABIJ	3120	3660
ACDJ	2900	4250
ACFJ	2170	2930
ACGJ	2530	3340
ADJ	2500	3700
ADFJ	2445	3100
ADGJ	2320	3290
ADHJ	2200	2925
AEFJ	3465	4450
AEGJ	3045	3640
AEHJ	2495	2900
AFJ	2315	2850
AFGJ	3075	3640
AFIJ	2680	3190
AGJ	2180	3340
AGIJ	2320	3540
AHJ	2350	2275
AHIJ	3200	3360

30. The shortest route form A to J is ACFJ, where the distance is 2170 km and the price to travel is Rs.2930. Hence, [4].

31. The lowest price for A to J is Rs.2275.

∴ The company should charge $0.95 \times 2275 = \text{Rs.}2161$ for the direct flight. Hence, [2].

32. If airports C, D and H are closed, the minimum price paid by passenger will be along the route AFJ i.e., Rs.2850. Hence, [3].

33. The minimum cost that the company incurred is $\frac{2275}{1.1} \approx \text{Rs.}2068$.

∴ The minimum cost per kilometer is $\frac{2068}{2350} = \text{Rs.}0.88/\text{km}$.

Hence, [2].

34. Cost incurred per km is:

$$\text{Option [1]: } \frac{2930}{1.15 \times 2170} \approx \frac{1.35}{1.15}$$

$$\text{Option [2]: } \frac{3340}{1.15 \times 2180} \approx \frac{1.53}{1.15}$$

$$\text{Option [3]: } \frac{2850}{1.15 \times 2315} \approx \frac{1.23}{1.15}$$

$$\text{Option [4]: } \frac{2275}{1.15 \times 2350} \approx \frac{0.96}{1.15}$$

Hence, [4].

35. Since for P, the cost per unit is the least and it contains the highest percentage of carbohydrates, the proportion of P should be the highest.

Thus, options [1] and [3] are eliminated.

$$\text{Option [2]: Carbohydrates} = \frac{4 \times 80 + 10 + 2 \times 45}{700} = \frac{320 + 10 + 90}{700} = \frac{420}{700} = 60\%$$

$$\text{Cost per unit} = \frac{200 + 200 + 200}{7} = \frac{600}{7}$$

$$\text{Option [4]: Carbohydrates} = \frac{3 \times 80 + 10 + 2 \times 45}{600} = \frac{240 + 100}{600} = \frac{340}{600} < 60\%, \text{ which is not possible.}$$

$$\text{Option [5]: Carbohydrates} = \frac{4 \times 80 + 10 + 45}{600} = \frac{320 + 55}{600} = \frac{375}{600} > 60\%$$

$$\text{Cost per unit} = \frac{200 + 200 + 100}{6} = \frac{500}{6}$$

$$\therefore \frac{600}{7} > \frac{500}{6}. \text{ Hence, [5].}$$

36. The diet must contain:

Carbohydrate $\geq 30\%$

Protein $\geq 30\%$

Fat $\leq 25\%$

Minerals $\geq 5\%$

$$\text{Option [1]: Protein} = \frac{30 + 20}{200} = \frac{50}{200} = 25\% < 30\%, \text{ hence option [1] is eliminated.}$$

$$\text{Option [2]: Carbohydrate} = \frac{50}{200} < 30\%, \text{ hence option [2] is eliminated.}$$

Option [3]: Minerals = $\frac{5}{200} < 5\%$, hence option [3] is eliminated.

Option [4]: Carbohydrate = $\frac{15}{200} < 30\%$, hence option [4] is eliminated.

Option [5]: everything is satisfied.
Hence, [5].

37. The diet must contain:

Minerals – 10%

Protein $\geq 30\%$

The only combination which gives 10% minerals is ‘O and Q in equal proportion.’ No other combination of two or more ingredients in any proportion contain 10% minerals.

Hence, [1].

38. The diet must contain:

Fat – 10%

Protein $\geq 30\%$

Option [1]: To get 10% fat, P and Q must be mixed in the ratio 4 : 1, then the mixture will contain $\frac{110}{500} = 22\% < 30\%$ protein.

Hence, option [1] is eliminated.

Option [2] is eliminated as P and S both do not contain fat.

Option [3]: P and R must be mixed in the ratio 3 : 1, then the mixture will contain $\frac{110}{400} < 30\%$ protein.

Hence, option [3] is eliminated.

Option [4]: Q and S must be mixed in the ratio 1 : 4, then the mixture will contain $\frac{230}{500} > 30\%$ protein.

The cost per unit = $\frac{200 + 4 \times 100}{500} = \frac{600}{500} = \frac{6}{5}$

Option [5]: R and S must be mixed in the ratio 1 : 3, then the mixture will contain $\frac{50 + 150}{400}$
= $\frac{200}{400} > 30\%$ protein.

The cost per unit = $\frac{800}{400} = 2 > \frac{6}{5}$.

Hence, [4].

39. Let the number of employees be x.

∴ The number of female employees are 0.7x and those with engineering background are 0.07x.

From statement I:

The number of employees with engineering background is 0.25x.

The percentage of male employees with engineering background out of the males can be calculated as $\frac{0.25x - 0.07x}{0.3x} \times 100$.

Also, the percentage of male employees out of total employees can be calculated as $\frac{0.25x - 0.07x}{x} \times 100$

∴ Statement I is sufficient to answer the question.

From statement II:

The number of male employees having engineering background is $1.2 \times 0.07x$.

∴ The percentage of male employees with engineering background out of males can be calculated as $\frac{1.2 \times 0.07x}{0.3x} \times 100$ and out of total can be calculated as $\frac{1.2 \times 0.07x}{x} \times 100$

∴ Statement II alone is sufficient to answer the question.

Hence, [3].

40. Since we do not know the number of goals scored by the opponent team, statement I alone is not sufficient to answer the question.

Since we do not know the total number of goals scored by Mahindra and Mahindra club in the match, statement II alone is not sufficient to answer the question.

Combining the statements I and II also, as we do not know goals scored by Mahindra and Mahindra club in first time it is not possible to find the number of goals scored by both the teams.

As possibilities can be: In the first half, Mahindra and Mahindra club can trail by 3-0 and final score can be 4-4 or the club can trail by 4-1 and the final score can be 4-5. Hence, [5].

41. From statement I:

40% of top academic performers were athletes which is equal to 10 students.

∴ The total number of top academic performers were $\frac{10}{0.4} = 25$.

∴ Statement I alone is sufficient to answer the question.

Statement II does not give any significant information about academic performers.

Hence, [1].

42. From the given data, we know $D > E$ and $B > C$ and C has either 4th and 5th rank in descending order.

From statement I:

Atul is ranked 5 but any one of B or D can be the top ranker in the group.

∴ Statement I alone is not sufficient to answer the question.

From statement II:

B's rank is 3rd, 4th or 5th. We cannot arrive at the arrangement.

∴ Statement II alone is not sufficient to answer the question.

Combining both the statements, we get $D > E > B > C > A$.

Hence, [4].

Answers to questions 43 to 46:

Costs for Material, Labour and Operating cost of machines are variable while for other parameters are more or less fixed. In 2002, variable component accounted for Rs.1,00,000 and production is 1000 units. In 2006, production is 1200 units and variable three factor amounted to Rs.1,20,000. Other factors in 2006 have constant value Rs.9600.

\therefore Cost defining equation can be $100 \times (\text{no. of units}) + 9600$

43. Cost price for 1400 units (approximately)
 $= (1400 \times 100) + 9600 = \text{Rs.}149600$

$$\therefore \text{Cost per unit} = \frac{149600}{1400} \approx \text{Rs.}107.$$

Hence, [2].

44. Let 'x' be the minimum number of units required. Selling price for 2007 will be Rs.125. This information along with approximate formula for cost determination in 2007 is extracted from the sentence in the data of question which say 'information provided for 2006 is the basis for projecting the figures of the 2007.'

$$\therefore 100x + 9600 = 125x$$

$$\therefore x = \frac{9600}{25} = 384.$$

Hence, [3].

45. Cost price per unit = Rs.125

$$\text{Reduced cost price per unit} = \frac{95}{100} \times 125 = \text{Rs.}118.75$$

$$\therefore \text{Profit} = 118.75x - (100x + 9600) \\ = 18.75x - 9600$$

This is maximum when x takes the maximum possible value.

$$\Rightarrow x = 2000 \text{ units}$$

Hence, [5].

46. Production cost for 1400 units is approximately Rs.149600.

$$\text{Profit for 1400 units} = (140 \times 125) - 149600 \\ = 17500 - 149600 = \text{Rs.}25,400.$$

$$\text{For } x \text{ units more than 1400, profit equation is } 120(1400 + x) - 100(1400 + x) - 9600 \\ = 20x + 18400.$$

This is maximum when x take maximum possible value i.e., 300 i.e., total 1700 units.

$$\text{Profit for 1700 units} = (20 \times 300) + 18400 = \text{Rs.}24,400.$$

\therefore Profit is maximum when 1400 units are produced.

Hence, [1].

Answer to questions 47 to 50:

The total number of male students $0.475 \times 800 = 380$ and vegetarian students in the school is $0.53 \times 800 = 424$.

The number of students in secondary section is 640 of which $0.55 \times 440 = 352$ are vegetarian. Similarly, we can calculate,

	Male (M)	Veg (V)
Class 12 (80)	48	32
Class 11 (80)	44	40
Secondary Section (640)	288	352
Total	380	424

47. Percentage of male students in secondary section = $\frac{288}{640} \times 100 \approx 45\%$. Hence, [2].

48. Note: Data given in Q.48 is not consistent with common data. However the answer has been arrived at by considering the data given in question 48.

50% of the students are vegetarian males i.e., 320 are vegetarian males.

Thus, vegetarian females can be $352 - 320 = 32$. We do not have any information about number of non-vegetarian males and females. Thus, we can infer that the group that can be affected is vegetarian females. Hence, [3].

49. Percentage of vegetarian students in class 12 = $\frac{32}{80} \times 100 \approx 40\%$. Hence, [1].

50. The number of vegetarian males in class 12 = $0.25 \times 32 = 8$

\Rightarrow The number of non-vegetarian males is 40. Number of vegetarian female is 24.

\therefore Required difference = 16. Hence, [5].