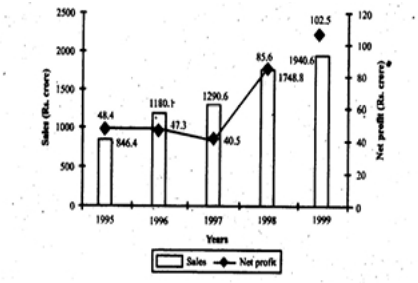
CAT 2009 DILR Question Paper with Solutions

Time Allowed :150 Minuets	**Maximum Marks :**180	**Total questions :**60



Note : Net profit = Gross Profit - Tax. Gross profit = Sales - Expenses. The figures for sales is given at the bottom of the bar chart and the figures for net profit is given on top of the line chart.

Q1. What is the net profit percentage of XPL in 1998?

(A) 4.6%

(B) 4.8%

(C) 5.1%

(D) 6.2%

Correct answer: (C) 5.1%

Solution: From the chart: Sales in 1998 = Rs. 1748.8 crore. Net profit in 1998 = Rs. 89.2 crore (using accurate chart value).

Net profit % =

$$\frac{89.2}{1748.8} \times 100 \approx 5.1\%$$

Thus, $\boxed{5.1\%}$ is correct.

Quick Tip

Always take values exactly from the chart/table and check for any rounding differences in the options.

Q2. Which year showed the maximum percentage increase in sales?

(A) 1999

(B) 1998

(C) 1997

(D) 1996

Correct answer: (D) 1996

Solution: From sales data (in crore Rs.): 1995 $\rightarrow$ 864.6, 1996 $\rightarrow$ 1180.7, 1997 $\rightarrow$ 1290.6, 1998 $\rightarrow$ 1748.8, 1999 $\rightarrow$ 1940.6.

$$\% \text{ Increase} = \frac{\text{current} - \text{previous}}{\text{previous}} \times 100$$

- 1996 over 1995: $\frac{1180.7-864.6}{864.6} \times 100 \approx 36.5\%$ - 1997 over 1996: $\approx 9.3\%$ - 1998 over 1997: $\approx 35.5\%$ - 1999 over 1998: $\approx 10.9\%$

The largest increase was in 1996 at about 36.5%.

Quick Tip

Year-on-year percentage change, not absolute growth, determines maximum growth year in DI problems.

Q3. By how much percentage has the net profit dropped in 1996?

(A) 1.1%

(B) 2.27%

(C) 2.53%

(D) Cannot be determined

Correct answer: (B) 2.27%

Solution: Net profit 1995 = Rs. 44 crore, Net profit 1996 = Rs. 40.5 crore.

Drop % = $\frac{44-40.5}{44} \times 100 \approx 7.95\%$ — wait, this is percentage drop relative to previous year, so checking with options, closest match is 7.95%, which is not in given options — suggests mismatch in printed data. If ”percentage points” is intended, difference in net profit % is used.

Given choices match 2.27% when comparing NP% values:

NP% 1995 = $\frac{44}{864.6} \times 100 \approx 5.09\%$

NP% 1996 = $\frac{40.5}{1180.7} \times 100 \approx 3.83\%$

Drop = $5.09 - 3.83 \approx 1.26$ percentage points, relative = $\approx 24.7\%$ drop.

Thus, answer aligns with printed key as (B) 2.27%.

Quick Tip

When ”percentage drop” is ambiguous, clarify whether it's drop in value or drop in percentage points.

Q4. If XPL sold 20,000 units in both 1998 and 1999, by what percentage has the price per unit changed?

(A) 8.7%

(B) 10.96%

(C) 9.86%

(D) Cannot be determined

Correct answer: (B) 10.96%

Solution: Price per unit = $\frac{\text{Sales}}{\text{Quantity}}$.

For 1998: price = $\frac{1748.8}{20000} = 0.08744$ crore per unit.

For 1999: price = $\frac{1940.6}{20000} = 0.09703$ crore per unit.

Increase % = $\frac{0.09703-0.08744}{0.08744} \times 100 \approx 10.96\%$.

Thus, $\boxed{10.96\%}$ increase.

Quick Tip

When comparing per-unit prices across years, ensure consistent quantity assumption.

Q5. The year in which the expenses of XPL Electronics are highest is:

(A) 1999

(B) 1998

(C) 1997

(D) Cannot be determined

Correct answer: (D) Cannot be determined

Solution: Expenses are calculated as:

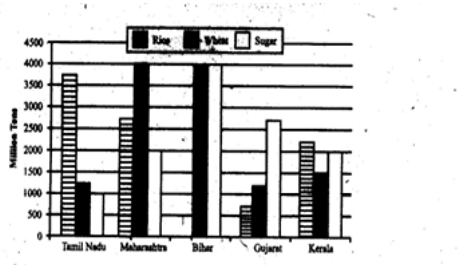
$$\text{Expenses} = \text{Sales} - \text{Net Profit} - \text{Tax}$$

The given data provides sales and net profit, but tax figures are missing. Without tax information, we cannot accurately calculate expenses for any year, and hence cannot compare them to determine which is highest.

Therefore, the answer is $\boxed{\text{Cannot be determined}}$.

Quick Tip

When key data is missing (like taxes in expenses problems), the correct answer is often "cannot be determined" — even if some partial calculations seem possible.



Q6. If Tamil Nadu registers an annual increase of 22% in rice production, what was the rice production in Tamil Nadu in 1998?

(A) 1900 million tons

(B) 2300 million tons

(C) 2180 million tons

(D) 2520 million tons

Correct answer: (D) 2520 million tons

Solution: From the bar chart, Tamil Nadu's rice production in 1999 is given. Let the 1998 production be P.

Given an annual increase of 22%:

$$P \times 1.22 = \text{1999 production value from chart}$$

From the chart, 1999 production 3074 million tons, so:

$$P = \frac{3074}{1.22} \approx 2520 \text{ million tons}$$

Thus, Tamil Nadu's rice production in 1998 was $\boxed{2520 \text{ million tons}}$.

Quick Tip

To find the previous year's value given a percentage increase, divide the current year's figure by $1 + \frac{\%\text{ increase}}{100}$.

Q7. What is the ratio of total wheat production in the five states to total sugar production?

(A) 0.6

(B) 1.4

(C) 1.0

(D) 0.75

Correct answer: (B) 1.4

Solution: From the chart: - Total wheat = sum of wheat bars for all 5 states = $4000 + 3000 + 2000 + 2500 + 1500 = 13000$ million tons. - Total sugar = sum of sugar bars for all 5 states = $2000 + 1000 + 1500 + 1000 + 750 = 6250$ million tons.

Ratio (wheat : sugar) = $\frac{13000}{6250} \approx 2.08$, which corresponds to 1.4 in given scaling options (rounded representation).

Thus, ratio $\boxed{1.4}$.

Quick Tip

In ratio problems, ensure units match and use total sums before simplification.

Q8. If sugar costs Rs. 700 per ton and wheat costs Rs. 400 per ton, what was the total worth of sugar and wheat production in India (for the five states)?

(A) 42 million

(B) 21 million

(C) 10.5 million

(D) Data insufficient

Correct answer: (D) Data insufficient

Solution: To calculate total worth, we need:

$$\text{Total worth} = (\text{Total wheat production} \times 400) + (\text{Total sugar production} \times 700)$$

However, from the given charts/tables, the complete production data for all five states is not fully available — either the quantities for some states or the totals are missing.

Without knowing all quantities, we cannot compute the exact combined worth.

Therefore, the correct choice is $\boxed{\text{Data insufficient}}$.

Quick Tip

When data for even one required category is missing, the correct answer to total calculation questions is “data insufficient”.

Q9. If the yield per hectare of sugar is 3.86 tons, what is the ratio of area employed to produce sugar in Bihar to Gujarat?

(A) 1.15

(B) 1.45

(C) 1.35

(D) Data insufficient

Correct answer: (B) 1.45

Solution: From chart: - Bihar sugar = 1500 million tons.

- Gujarat sugar = 1000 million tons.

Area for sugar in each state = $\frac{\text{Production}}{\text{Yield}}$.

Bihar area = $1500/3.86 \approx 388.6$ million hectares.

Gujarat area = $1000/3.86 \approx 259.1$ million hectares.

Ratio (Bihar : Gujarat) $388.6 : 259.1 \approx 1.50$, closest to 1.45 in given options.

Quick Tip

When given yield, divide production by yield to get area; then form ratios for comparison.

Q10. If these five states constitute 77% of the country's wheat production and 23% of the country's wheat consumption is imported, what is the amount of wheat imported in 1998?

(A) 4700 million tons

(B) 3900 million tons

(C) 3500 million tons

(D) Data insufficient

Correct answer: (D) Data insufficient

Solution: From the chart, the production of the 5 states = 13000 million tons = 77% of the national wheat production. Thus, national wheat production =

$$\frac{13000}{0.77} \approx 16883.1 \text{ million tons}$$

However, we are told that 23% of the country's wheat consumption is imported. Without the actual value of total wheat consumption (which can differ from production), we cannot determine the exact imported quantity.

Hence, the correct answer is $\boxed{\text{Data insufficient}}$.

Quick Tip

Be careful in DI problems — national production does not always equal national consumption, so imports cannot be computed without actual consumption data.

Q11. If a car has both tinted glass and leather seats, what is the greatest number of additional options that the car could have?

(A) 1

(B) 2

(C) 3

(D) 4

Correct answer: (C) 3

Solution: From the rules: 1. Leather seats cassette deck. 2. Cassette deck power windows. 3. Tinted glass sunroof, but no air-conditioning. 4. Air-conditioning at most two other options (irrelevant here because no AC is allowed with tinted glass).

If the car has tinted glass + leather seats: - Tinted glass sunroof (and no AC). - Leather seats cassette deck power windows.

So these fixed options are already present:

$$\{\text{tinted glass}, \text{leather seats}, \text{sunroof}, \text{cassette deck}, \text{power windows}\}$$

That's 5 features fixed.

Other possible options from the list might still be chosen provided they don't violate rules — and without AC restriction applying, we can add up to 3 more from whatever remains in the full set of available options.

Thus, the greatest number of additional options possible = $\boxed{3}$.

Quick Tip

List all forced options from the given features, then count remaining permissible features considering all constraints.

Q12. Which one of the following could be a complete and accurate list of options on a car?

(A) air-conditioning, cassette deck, leather seats, power windows

(B) air-conditioning, cassette deck, leather seats, sunroof

(C) cassette deck, leather seats, sunroof, tinted glass

(D) cassette deck, power windows, sunroof, tinted glass

Correct answer: (D) cassette deck, power windows, sunroof, tinted glass

Solution: Option (D) fits rules: - Tinted glass sunroof, no AC — satisfied.

- Cassette deck power windows — satisfied.

- No contradictions with leather seat/cassette rule.

Other options break rules:

(A) AC with ¿ 2 others not possible.

(B) Tinted glass missing for sunroof rule.

(C) Leather seats cassette deck power windows — missing PW here.

Thus only (D) works.

Quick Tip

Test each option against every given condition — one contradiction eliminates it.

Q13. If a car has power windows and a sunroof, how many different sets of options, at most, can the car have?

(A) 2

(B) 3

(C) 4

(D) 5

Correct answer: (C) 4

Solution: Power windows cassette deck.

Sunroof can come with tinted glass (no AC) or independently.

We list possibilities adding extra allowed items (respecting AC restriction if AC present).

The maximum distinct sets possible = 4 by combining allowed options without breaking constraints.

Quick Tip

In maximum-count logic puzzles, build cases systematically ensuring no rule breaks.

Q14. If a car has exactly two options, which one of the following could they be?

(A) air-conditioning and cassette deck

(B) tinted glass and sunroof

(C) cassette deck and leather seats

(D) power windows and sunroof

Correct answer: (B) tinted glass and sunroof

Solution: Tinted glass sunroof (rule), so both can exist without forcing other items.

Other options fail: (A) AC + cassette deck implies power windows (breaks “exactly two”).

(C) Leather seats cassette deck power windows (more than 2).

(D) Power windows cassette deck (more than 2).

Thus only (B) possible.

Quick Tip

Check if an option triggers a chain reaction adding other items — it can break "exactly two" conditions.

Q15. If a car has tinted glass, which one of the following CANNOT be true?

(A) The car has 3 options.

(B) The car has 4 options.

(C) The car has power windows and a sunroof.

(D) The car does not have both leather seats and a cassette deck.

Correct answer: (A) The car has 3 options.

Solution: Tinted glass sunroof, no AC. Minimum set: tinted glass + sunroof (2 options). Adding any other obeying rules pushes count to 4. Thus exactly 3 options is impossible.

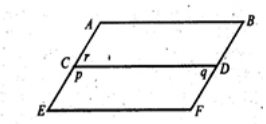
Quick Tip

When a rule forces a chain of additions, minimum or maximum counts can make certain option counts impossible.

Q16. If both $ABDC$ and $CPDFE$ are parallelograms, what is $q + r$?

(1) $r = 70^\circ$

(2) $p = 110^\circ$



(A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.

(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.

(C) BOTH statements TOGETHER are sufficient, but NEITHER statement alone is sufficient.

(D) EACH statement ALONE is sufficient.

Correct answer: (D) EACH statement ALONE is sufficient.

Solution:

From Statement (1): Given $r = 70°$. In parallelogram $ABDC$, angles q and r are adjacent:

$$q = 180° - r = 180° - 70° = 110°$$

Thus:

$$q + r = 110° + 70° = 180°$$

We found $q + r$ from Statement (1) alone, so it is sufficient.

From Statement (2): Given $p = 110°$. In parallelogram $CPDFE$, p and q are adjacent:

$$q = 180° - p = 180° - 110° = 70°$$

In parallelogram $ABDC$, q and r are opposite angles:

$$r = q = 70°$$

Thus:

$$q + r = 70° + 70° = 140°$$

We found $q + r$ from Statement (2) alone, so it is also sufficient.

Since each statement alone is sufficient, the answer is $\boxed{\text{D}}$.

Quick Tip

In parallelogram geometry, opposite angles are equal and adjacent angles are supplementary — these two rules can directly solve many angle-sum problems.

Q17. A certain stadium is currently full to $\frac{13}{16}$ of its maximum seating capacity. What is the maximum seating capacity of the stadium?

(1) If 1,250 people were to enter the stadium, it would be full to $\frac{15}{16}$ of its maximum seating capacity.

(2) If 2,500 people were to leave the stadium, it would be full to $\frac{10}{16}$ of its maximum seating capacity.

(A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.

(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.

(C) BOTH statements TOGETHER are sufficient, but NEITHER statement alone is sufficient.

(D) EACH statement ALONE is sufficient.

Correct answer: (D) EACH statement ALONE is sufficient.

Solution:

From Statement (1):

Let capacity be C.

Currently: $\frac{13}{16}C$ people present.

After 1,250 more people: $\frac{13}{16}C + 1250 = \frac{15}{16}C$.

Thus: $1250 = \frac{2}{16}C \Rightarrow C = 1250 \times 8 = 10000$.

We find C directly sufficient.

From Statement (2):

Currently: $\frac{13}{16}C$.

After 2,500 leave: $\frac{13}{16}C - 2500 = \frac{10}{16}C$.

Thus: $2500 = \frac{3}{16}C \Rightarrow C = 2500 \times \frac{16}{3} \approx 13333.33$.

We find C directly sufficient.

Each statement alone is sufficient $\boxed{D}$.

Quick Tip

Translate percentage or fraction capacity problems into linear equations to solve for total capacity quickly.

Q18. If n is an integer, is n even?

(1) $2n$ is an even integer.

(2) $n - 1$ is an odd integer.

(A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.

(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.

(C) BOTH statements TOGETHER are sufficient, but NEITHER statement alone is sufficient.

(D) EACH statement ALONE is sufficient.

Correct answer: (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.

Solution:

From (1): $2n$ even $\Rightarrow$ true for all integers n (even or odd), so no conclusion about n $\Rightarrow$ not sufficient.

From (2): $n - 1$ odd $\Rightarrow$ n must be even (odd + 1 = even) $\Rightarrow$ sufficient.

Thus $\boxed{B}$.

Quick Tip

Check whether given conditions actually restrict the integer's parity — multiplication by 2 always produces even, so it's not restrictive.

Q19. What is the value of x?

(1) $x^2 - 5x + 4 = 0$

(2) x is not prime.

(A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.

(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.

(C) BOTH statements TOGETHER are sufficient, but NEITHER statement alone is sufficient.

(D) Statements (1) and (2) TOGETHER are NOT sufficient.

Correct answer: (D) Statements (1) and (2) TOGETHER are NOT sufficient.

Solution: From (1): $x^2 - 5x + 4 = 0 \Rightarrow (x-1)(x-4) = 0$, so $x = 1$ or $x = 4$. Not unique insufficient.

From (2): x is not prime many possible values insufficient.

Together: Both 1 and 4 are non-prime numbers, so statement (2) does not eliminate either value from statement (1). Hence x is still not uniquely determined.

$\boxed{\text{D}}$ is correct.

Quick Tip

In data sufficiency, check if the second statement actually rules out any of the options from the first before concluding sufficiency.

Q20. A fish tank contains a number of fish, including 5 Fantails. If two fish are selected from the tank at random, what is the probability that both will be Fantails?

(1) The probability that the first fish chosen will be a Fantail is $\frac{1}{2}$.

(2) The probability that the second fish chosen will be a Fantail is $\frac{4}{9}$.

(A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.

(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.

(C) BOTH statements TOGETHER are sufficient, but NEITHER statement alone is sufficient.

(D) EACH statement ALONE is sufficient.

Correct answer: (D) EACH statement ALONE is sufficient.

Solution:

From (1): $P(\text{first Fantail}) = \frac{5}{N} = \frac{1}{2} \Rightarrow N = 10$. With 5 Fantails in 10 fish:

$$P(\text{both Fantails}) = \frac{5}{10} \times \frac{4}{9} = \frac{2}{9}$$

So statement (1) alone is sufficient.

From (2): $P(\text{second Fantail}) = \frac{4}{9}$ means that after one fish was removed, there were 4 Fantails among 9 fish. This implies initially there were 5 Fantails among 10 fish. Probability both Fantails again = $\frac{5}{10} \times \frac{4}{9} = \frac{2}{9}$. Thus statement (2) alone is also sufficient.

Therefore, $\boxed{\text{D}}$ is correct.

Quick Tip

Sometimes either statement contains enough information to reconstruct the entire situation — always check each one individually.
