OJEE 2026 Integrated MBA

Question Paper (Memory-Based) with Solutions

Conducted by Odisha Joint Entrance Examination Committee (OJEEC)

General Instructions

(i) The examination will be conducted in Computer-Based Test (CBT) mode.

(ii) Each question carries +4 marks for correct answer and -1 mark for wrong answer.

(iii) The total number of questions and duration will vary depending on the course.

(iv) Duration of the exam is 1 hour (60 minutes).

1. How many bricks each measuring 25cm × 11.25cm × 6cm will be needed to build a wall of size 8m × 6m × 22.5cm?

(A) 5600

(B) 600

(C) 6400

(D) 7200

Correct Answer: (C) 6400

Solution:

Step 1: Understanding the Question:

The problem asks for the number of bricks required to build a wall of given dimensions. This involves calculating volumes and ensuring consistent units.

Step 2: Key Formula or Approach:

1. Calculate the volume of one brick.
2. Calculate the volume of the wall.
3. Ensure all dimensions are in the same unit (e.g., meters or centimeters).
4. Number of bricks $= \frac{\text{Volume of wall}}{\text{Volume of one brick}}$.

Step 3: Detailed Explanation:

Dimensions of one brick:

Length = 25 cm = 0.25 m

Width = 11.25 cm = 0.1125 m

Height = 6 cm = 0.06 m

Volume of one brick = $0.25 \times 0.1125 \times 0.06$ m^3 = 0.0016875 m^3.

Dimensions of the wall:

Length = 8 m

Width = 6 m

Height = 22.5 cm = 0.225 m

Volume of the wall = $8 \times 6 \times 0.225$ m^3 = 48×0.225 m^3 = 10.8 m^3.

Number of bricks needed:

Number of bricks = $\frac{\text{Volume of wall}}{\text{Volume of one brick}} = \frac{10.8 \text{ m}^3}{0.0016875 \text{ m}^3}$.

To simplify the division:

Number of bricks = $\frac{10.8}{0.0016875} = \frac{10800000}{16875} = 6400$.

Step 4: Final Answer:

6400 bricks will be needed.

Quick Tip: Always convert all dimensions to a consistent unit (either all cm or all m) *before* calculating volumes. This prevents errors and simplifies calculations. For example, 22.5 cm = 0.225 m.

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2. The profit earned by selling an article for Rs. 900 is double the loss incurred when sold for Rs. 490. At what price should it be sold to make 25% profit?

(A) Rs. 715

(B) Rs. 469

(C) Rs. 400

(D) Rs. 783.33

Correct Answer: (D) Rs. 783.33

Solution:

Step 1: Understanding the Question:

The problem has two parts: first, finding the cost price (CP) of an article based on given profit and loss scenarios. Second, calculating the selling price (SP) required to achieve a 25% profit on that CP.

Step 2: Key Formula or Approach:

1. Profit = SP - CP
2. Loss = CP - SP
3. To make P

Step 3: Detailed Explanation:

Let the Cost Price (CP) of the article be Rs. x.

Scenario 1: Selling for Rs. 900

Selling Price (SP1) = Rs. 900.

Profit = SP1 - CP = $900 - x$.

Scenario 2: Selling for Rs. 490

Selling Price (SP2) = Rs. 490.

Loss = CP - SP2 = $x - 490$.

Given Relationship:

The profit earned is double the loss incurred.

$$900 - x = 2 \times (x - 490)$$

$$900 - x = 2x - 980$$

Rearrange the equation to solve for x:

$$900 + 980 = 2x + x$$

$$1880 = 3x$$

$$x = \frac{1880}{3}$$

CP = Rs. $\frac{1880}{3}$.

Calculate Selling Price for 25% Profit:

Desired profit = 25% = 0.25.

$$\text{SP for 25\% profit} = \text{CP} \times (1 + 0.25) = \text{CP} \times 1.25$$

$$\text{SP} = \frac{1880}{3} \times 1.25$$

$$\text{SP} = \frac{1880}{3} \times \frac{5}{4}$$

$$\text{SP} = \frac{1880 \times 5}{12}$$

$$\text{SP} = \frac{9400}{12} = \frac{2350}{3}$$

$$\text{SP} = 783.33$$

Quick Tip: **Quick Tip:**

When a problem says “profit is double the loss,” directly form an equation using:

$$\text{Profit} = \text{SP} - \text{CP}$$

$$\text{Loss} = \text{CP} - \text{SP}$$

Then solve for the Cost Price (CP) first.

After finding CP, use:

$$\text{SP} = \text{CP} \times \left(1 + \frac{\text{Profit \%}}{100}\right)$$

to calculate the required selling price.

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3. One AC cools in 40 minutes and another in 45 minutes. If both work together, how long will it take?

(A) 18 minutes

(B) 19 minutes

(C) 22 minutes

(D) 24 minutes

Correct Answer: (C) 22 minutes

Solution:

Step 1: Understanding the Question:

The problem involves two ACs (working units) completing a task (cooling) at different rates. We need to find the combined time it takes for them to complete the same task when working together. This is a classic "work and time" problem.

Step 2: Key Formula or Approach:

1. Determine the rate of work for each AC (amount of work done per unit time). If an AC cools in T minutes, its rate is $1/T$ per minute.
2. Add their individual rates to find the combined rate.
3. The inverse of the combined rate will give the total time taken when working together.

If time taken by A is T_1 and by B is T_2, then time taken together $T = \frac{T_1 \times T_2}{T_1 + T_2}$.

Step 3: Detailed Explanation:

Let AC1 cool in $T_1 = 40$ minutes.

Let AC2 cool in $T_2 = 45$ minutes.

1. **Rate of AC1:**

Rate1 $= \frac{1}{40}$ of the cooling per minute.

2. **Rate of AC2:**

Rate2 $= \frac{1}{45}$ of the cooling per minute.

3. **Combined Rate:**

Combined Rate $=$ Rate1 $+$ Rate2 $= \frac{1}{40} + \frac{1}{45}$.

To add these fractions, find a common denominator, which is the Least Common Multiple (LCM) of 40 and 45.

$40 = 2^3 \times 5$

$45 = 3^2 \times 5$

LCM$(40, 45) = 2^3 \times 3^2 \times 5 = 8 \times 9 \times 5 = 360$.

Combined Rate $= \frac{9}{360} + \frac{8}{360} = \frac{17}{360}$ of the cooling per minute.

4. **Time taken together (T):**

Time $= \frac{1}{\text{Combined Rate}} = \frac{360}{17}$ minutes.

$360 \div 17 \approx 21.176$ minutes ≈ 22 minutes

Step 4: Final Answer:

When both ACs work together, it will take approximately 22 minutes.

Quick Tip: For work-and-time problems, always convert individual times into rates (work per unit time). Sum the rates for combined work, then take the reciprocal for the total time. Be careful with calculations and comparing to options, as rounding or question errors can occur.

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4. A person crosses 600 m in 5 minutes. Find speed in km/hr.

(A) 3.6

(B) 7.2

(C) 8.4

(D) 10

Correct Answer: (B) 7.2

Solution:

Step 1: Understanding the Question:

The problem asks to calculate speed in kilometers per hour, given distance in meters and time in minutes. This requires unit conversions.

Step 2: Key Formula or Approach:

1. Speed $= \frac{\text{Distance}}{\text{Time}}$.
2. Convert meters to kilometers (1 km $= 1000$ m).
3. Convert minutes to hours (1 hour $= 60$ minutes).
4. Alternatively, use the conversion factor: 1 m/s $= \frac{18}{5}$ km/hr.

Step 3: Detailed Explanation:

Given:

- Distance (D) $= 600$ m.
- Time (T) $= 5$ minutes.

Method 1: Step-by-step conversion

1. **Convert distance to km:**

$D = 600 \text{ m} = \frac{600}{1000} \text{ km} = 0.6 \text{ km}$.

2. **Convert time to hours:**

$T = 5 \text{ minutes} = \frac{5}{60} \text{ hours} = \frac{1}{12} \text{ hours}$.

3. **Calculate speed in km/hr:**

$\text{Speed} = \frac{D}{T} = \frac{0.6 \text{ km}}{1/12 \text{ hr}} = 0.6 \times 12 \text{ km/hr} = 7.2 \text{ km/hr}$.

Method 2: Convert to m/s first, then to km/hr

1. **Calculate speed in m/s:**

$T = 5 \text{ minutes} = 5 \times 60 = 300 \text{ s}$.

$\text{Speed} = \frac{600 \text{ m}}{300 \text{ s}} = 2 \text{ m/s}$.

2. **Convert speed from m/s to km/hr:**

Speed $= 2$ m/s $\times \frac{18}{5}$ km/hr per m/s

Speed $= \frac{36}{5}$ km/hr $= 7.2$ km/hr.

Step 4: Final Answer:

The speed in km/hr is 7.2.

Quick Tip: Memorize the conversion factors: 1 km/hr $= \frac{5}{18}$ m/s and 1 m/s $= \frac{18}{5}$ km/hr. This makes conversions between these common speed units very fast.

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5. Find ? in equation: $?/\sqrt{128} = \sqrt{162}/?$

(A) 12

(B) 14

(C) 144

(D) 196

Correct Answer: (C) 144

Solution:

Step 1: Understanding the Question:

The problem asks to find the missing value (represented by '?') in a given algebraic equation involving square roots.

Step 2: Key Formula or Approach:

1. Rearrange the equation to isolate the unknown.
2. Simplify square roots where possible ($\sqrt{ab} = \sqrt{a}\sqrt{b}$).
3. Solve for the unknown.

Step 3: Detailed Explanation:

Given equation:

$$\frac{?}{\sqrt{128}} = \frac{\sqrt{162}}{?}$$

Let the unknown value be x.

$$\frac{x}{\sqrt{128}} = \frac{\sqrt{162}}{x}$$

Cross-multiply:

$$x^2 = \sqrt{128} \times \sqrt{162}$$

Simplify the square roots:

$$\sqrt{128} = \sqrt{64 \times 2} = 8\sqrt{2}$$

$$\sqrt{162} = \sqrt{81 \times 2} = 9\sqrt{2}$$

Substitute these simplified values back into the equation for x^2:

$$x^2 = (8\sqrt{2}) \times (9\sqrt{2})$$

$$x^2 = 8 \times 9 \times \sqrt{2} \times \sqrt{2}$$

$$x^2 = 72 \times 2$$

$$x^2 = 144$$

Solve for x:

$$x = \sqrt{144} = 12$$

Step 4: Final Answer:

The missing value is 12.

Quick Tip: Always try to simplify square roots by factoring out perfect squares before performing multiplication. This often makes the calculation much easier and reduces the chance of errors. For example, $\sqrt{128} = \sqrt{64 \times 2}$ rather than directly multiplying large numbers.
