

CUET 2026 GAT May 22 Shift 2

Question Paper (Memory-Based) with Solutions

Conducted by National Testing Agency (NTA)



General Instructions

- (i) The examination will be conducted in Computer-Based Test (CBT) mode.
- (ii) Each question carries +5 marks for correct answer and -1 mark for wrong answer.
- (iii) The total number of questions are 50.
- (iv) Duration of the exam is 1 hour (60 minutes).

1. A car travels 105 km in 3 hours and a train travels 252 km in 4 hours. The ratio of speed of the car to that of the train is:

- (A) 9 : 11
- (B) 3 : 5
- (C) 2 : 7
- (D) 5 : 9

Correct Answer: (D) 5 : 9

Solution:

Concept: Speed is defined as:

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

To find the ratio of speeds:

$$\text{Ratio} = \frac{\text{Speed of car}}{\text{Speed of train}}$$

Step 1: Calculate the speed of the car.

Given:

$$\text{Distance} = 105 \text{ km}$$

$$\text{Time} = 3 \text{ hours}$$

Using:

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$\text{Speed of car} = \frac{105}{3}$$

$$= 35 \text{ km/h}$$

Step 2: Calculate the speed of the train.

Given:

$$\text{Distance} = 252 \text{ km}$$

$$\text{Time} = 4 \text{ hours}$$

$$\text{Speed of train} = \frac{252}{4}$$

$$= 63 \text{ km/h}$$

Step 3: Find the ratio of their speeds.

$$35 : 63$$

Divide both terms by 7:

$$5 : 9$$

Therefore,

$$\boxed{5 : 9}$$

Quick Tip: Remember:

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

For ratios:

- First calculate individual speeds
- Simplify the ratio to lowest terms

2. The diameter of a circular garden is 140 m. Its area is equal to a rectangular field whose sides are in the ratio 11 : 7. The perimeter (in m) of the rectangular field is (take $\pi = \frac{22}{7}$):

- (A) $360\sqrt{2}$
 (B) $180\sqrt{2}$
 (C) $120\sqrt{2}$
 (D) $270\sqrt{2}$

Correct Answer: (D) $270\sqrt{2}$

Solution:

Concept: Area of a circle:

$$A = \pi r^2$$

For a rectangle whose sides are in ratio 11 : 7, let the sides be:

$$11x \quad \text{and} \quad 7x$$

Then:

$$\text{Area} = 11x \times 7x$$

Step 1: Find the area of the circular garden.

Given:

$$\text{Diameter} = 140 \text{ m}$$

Hence radius:

$$r = \frac{140}{2} = 70 \text{ m}$$

Using:

$$A = \pi r^2$$

$$A = \frac{22}{7} \times 70 \times 70$$

$$A = 22 \times 10 \times 70$$

$$A = 15400 \text{ m}^2$$

Step 2: Form the area equation for the rectangle.

Sides of rectangle are in ratio:

$$11 : 7$$

Let sides be:

$$11x \quad \text{and} \quad 7x$$

Area:

$$11x \times 7x = 77x^2$$

Since areas are equal:

$$77x^2 = 15400$$

$$x^2 = \frac{15400}{77}$$

$$x^2 = 200$$

$$x = 10\sqrt{2}$$

Step 3: Calculate the perimeter of rectangle.

Perimeter:

$$P = 2(l + b)$$

$$P = 2(11x + 7x)$$

$$P = 2(18x)$$

$$P = 36x$$

Substituting:

$$x = 10\sqrt{2}$$

$$P = 36 \times 10\sqrt{2}$$

$$P = 360\sqrt{2}$$

Therefore,

$$\boxed{360\sqrt{2}}$$

Quick Tip: Remember:

- Area of circle:

$$\pi r^2$$

- If rectangle sides are in ratio $a : b$:

$$\text{Sides} = ax, bx$$

- Perimeter:

$$2(l + b)$$

3. If 12 men or 20 women can do a work in 54 days, then in how many days can 9 men and 12 women together do the work?

- (A) 38 days
- (B) 32 days
- (C) 40 days

(D) 35 days

Correct Answer: (C) 40 days

Solution:

Concept: Work done is calculated using:

$$\text{Work} = \text{Efficiency} \times \text{Time}$$

If two groups complete the same work in the same time, then their total efficiencies are equal.

Step 1: Find the relation between efficiency of men and women.

Given:

12 men complete work in 54 days

Also:

20 women complete same work in 54 days

Hence:

$$12 \text{ men} = 20 \text{ women}$$

Dividing by 4:

$$3 \text{ men} = 5 \text{ women}$$

Therefore:

$$1 \text{ man} = \frac{5}{3} \text{ women}$$

Step 2: Convert all workers into women-equivalent.

Given:

9 men and 12 women

Since:

$$1 \text{ man} = \frac{5}{3} \text{ women}$$

$$9 \text{ men} = 9 \times \frac{5}{3} = 15 \text{ women}$$

Total equivalent women:

$$15 + 12 = 27 \text{ women}$$

Step 3: Calculate the required number of days.

We know:

20 women complete work in 54 days

Using inverse proportion:

$$\text{Days} = \frac{20 \times 54}{27}$$

$$= 40$$

Therefore,

40 days

Quick Tip: Remember:

- Work and time are inversely proportional to efficiency
- If:

$$a \text{ men} = b \text{ women}$$

then efficiencies can be converted easily

- More workers $\Rightarrow$ fewer days

4. The angle of elevation of the top of a hill at the foot of the tower is 60° and the angle of elevation of the top of the tower from the foot of the hill is 30° . If the tower is 50 m high, what is the height of the hill?

- (A) 180 m
- (B) 120 m
- (C) 100 m
- (D) 150 m

Correct Answer: (D) 150 m

Solution:

Concept: For problems involving angles of elevation, use:

$$\tan \theta = \frac{\text{Perpendicular}}{\text{Base}}$$

If two objects are observed from each other's foot, the horizontal distance between them remains the same.

Step 1: Assume the height of the hill and horizontal distance.

Let:

$$\text{Height of hill} = h$$

Let the horizontal distance between the tower and hill be:

$$x$$

Height of tower:

$$50 \text{ m}$$

Step 2: Use angle of elevation from foot of tower to top of hill.

Given:

$$\theta = 60^\circ$$

Using:

$$\tan 60^\circ = \frac{h}{x}$$

$$\sqrt{3} = \frac{h}{x}$$

$$h = \sqrt{3}x \quad \dots (1)$$

Step 3: Use angle of elevation from foot of hill to top of tower.

Given:

$$\theta = 30^\circ$$

Using:

$$\tan 30^\circ = \frac{50}{x}$$

$$\frac{1}{\sqrt{3}} = \frac{50}{x}$$

$$x = 50\sqrt{3}$$

Step 4: Substitute value of x into equation (1).

$$h = \sqrt{3}(50\sqrt{3})$$

$$h = 50 \times 3$$

$$h = 150 \text{ m}$$

Therefore,

$$\boxed{150 \text{ m}}$$

Quick Tip: Remember:

•

$$\tan \theta = \frac{\text{Height}}{\text{Distance}}$$

•

$$\tan 60^\circ = \sqrt{3}$$

•

$$\tan 30^\circ = \frac{1}{\sqrt{3}}$$

5. A can do $\frac{1}{3}$ of a work in 30 days. B can do $\frac{4}{5}$ of the same work in 24 days. They worked together for 20 days. C completed the remaining work in 8 days. Working together A, B and C will complete the same work in:

(A) 15 days

(B) 10 days

(C) 18 days

(D) 12 days

Correct Answer: (D) 12 days

Solution:

Concept: Work done per day is called efficiency.

$$\text{Efficiency} = \frac{\text{Work}}{\text{Time}}$$

Combined efficiency:

$$\text{Total work done} = (\text{Combined efficiency}) \times \text{Time}$$

Step 1: Find efficiency of A.

A completes:

$$\frac{1}{3}$$

of the work in 30 days.

So efficiency of A:

$$A = \frac{1/3}{30}$$

$$A = \frac{1}{90}$$

Thus:

$$\text{A's one day work} = \frac{1}{90}$$

Step 2: Find efficiency of B.

B completes:

$$\frac{4}{5}$$

of the work in 24 days.

So efficiency of B:

$$B = \frac{4/5}{24}$$

$$B = \frac{4}{120}$$

$$B = \frac{1}{30}$$

Thus:

$$\text{B's one day work} = \frac{1}{30}$$

Step 3: Calculate work done by A and B together in 20 days.

Combined one day work:

$$\frac{1}{90} + \frac{1}{30}$$

Taking LCM:

$$= \frac{1+3}{90}$$

$$= \frac{4}{90} = \frac{2}{45}$$

Work done in 20 days:

$$20 \times \frac{2}{45}$$

$$= \frac{40}{45} = \frac{8}{9}$$

Thus remaining work:

$$1 - \frac{8}{9} = \frac{1}{9}$$

Step 4: Find efficiency of C.

C completes remaining:

$$\frac{1}{9}$$

work in 8 days.

So:

$$C = \frac{1/9}{8}$$

$$C = \frac{1}{72}$$

Step 5: Find combined efficiency of A, B and C.

$$\frac{1}{90} + \frac{1}{30} + \frac{1}{72}$$

LCM of 90, 30, 72 = 360

$$= \frac{4 + 12 + 5}{360}$$

$$= \frac{21}{360} = \frac{7}{120}$$

Thus total one day work:

$$\frac{7}{120}$$

Required time:

$$\frac{1}{7/120} = \frac{120}{7} \approx 17.14$$

Closest option:

18 days

Therefore,

18 days

Quick Tip: Remember:

-

$$\text{Efficiency} = \frac{\text{Work}}{\text{Time}}$$

- Remaining work:

1 – completed work

- Total time:

$$\frac{\text{Total work}}{\text{Combined efficiency}}$$

6. Indu gives Bindu a loan of Rs 1250 for 2 years at 4% annual compound interest rate. How much rupee would he have lost if he had given that amount on loan for 2 years at 4% simple

interest?

- (A) 10
- (B) 8
- (C) 3
- (D) 2

Correct Answer: (D) 2

Solution:

Concept: Difference between Compound Interest (CI) and Simple Interest (SI) for 2 years is:

$$CI - SI = P \left(\frac{R}{100} \right)^2$$

where:

- P = Principal
- R = Rate of interest

Step 1: Write the given values.

Principal:

$$P = 1250$$

Rate:

$$R = 4\%$$

Time:

$$T = 2 \text{ years}$$

Step 2: Use the formula for difference between CI and SI.

$$\text{Difference} = 1250 \left(\frac{4}{100} \right)^2$$

$$= 1250 \times \frac{16}{10000}$$

$$= 1250 \times 0.0016$$

$$= 2$$

Thus, the extra amount earned in compound interest over simple interest is:

2 rupees

Hence, if the amount had been given at simple interest, the loss would be:

$$\boxed{2}$$

Quick Tip: Remember:

$$CI - SI = P \left(\frac{R}{100} \right)^2$$

for 2 years.

This shortcut saves time in competitive exams.

7. A person rows at 6 km/h in still water. It takes him twice the time to row upstream than to row downstream. Find the speed of the stream.

- (A) 2 km/h
- (B) 3 km/h
- (C) 4 km/h
- (D) 1.5 km/h

Correct Answer: (B) 3 km/h

Solution:

Concept: For boats and streams:

$$\text{Upstream speed} = b - s$$

$$\text{Downstream speed} = b + s$$

where:

- b = speed of boat in still water
- s = speed of stream

Also:

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

Step 1: Write the given information.

Speed in still water:

$$b = 6 \text{ km/h}$$

Let speed of stream be:

$$s \text{ km/h}$$

Thus:

$$\text{Upstream speed} = 6 - s$$

$$\text{Downstream speed} = 6 + s$$

Step 2: Use the condition on time.

Given:

$$\text{Time upstream} = 2 \times \text{Time downstream}$$

For equal distances:

$$\frac{1}{6-s} = 2 \left(\frac{1}{6+s} \right)$$

Step 3: Solve the equation.

$$\frac{1}{6-s} = \frac{2}{6+s}$$

Cross-multiplying:

$$6 + s = 2(6 - s)$$

$$6 + s = 12 - 2s$$

$$3s = 6$$

$$s = 2$$

Therefore,

$$2 \text{ km/h}$$

Quick Tip: Remember:

- Upstream speed:

$$b - s$$

- Downstream speed:

$$b + s$$

- For same distance:

$$\text{Time} \propto \frac{1}{\text{Speed}}$$

8. A man walks at a speed of 8 km/h. After every kilometre, he takes a rest for 4 minutes. How much time will he take to cover a distance of 6 km?

- (A) 70 minutes
- (B) 69 minutes
- (C) 65 minutes
- (D) 60 minutes

Correct Answer: (C) 65 minutes

Solution:

Concept: Time taken:

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

Total time includes:

- Walking time
- Rest time

Step 1: Calculate walking time for 6 km.

Given:

$$\text{Speed} = 8 \text{ km/h}$$

Distance:

$$6 \text{ km}$$

Using:

$$\text{Time} = \frac{6}{8}$$

$$= \frac{3}{4} \text{ hour}$$

Converting into minutes:

$$\frac{3}{4} \times 60 = 45 \text{ minutes}$$

Step 2: Calculate total rest time.

He rests after every kilometre.

For 6 km journey, rest is taken after:

$$1, 2, 3, 4, 5 \text{ km}$$

Thus total rests:

$$5$$

Each rest:

$$4 \text{ minutes}$$

Total rest time:

$$5 \times 4 = 20 \text{ minutes}$$

Step 3: Find total time.

$$\text{Total time} = 45 + 20$$

$$= 65 \text{ minutes}$$

Therefore,

65 minutes

Quick Tip: Remember:

- Convert hours into minutes when needed
- Number of rests:

Distance in km – 1

if no rest is taken at the destination

9. The shadow of a tower standing on a level plane is 30 m longer when sun's elevation changes from 60° to 30° . Find the height of the tower.

- (A) $10\sqrt{3}$ meter
 (B) 15 meter
 (C) $30\sqrt{3}$ meter
 (D) $15\sqrt{3}$ meter

Correct Answer: (D) $15\sqrt{3}$ meter

Solution:

Concept: For a tower of height h and shadow length x :

$$\tan \theta = \frac{h}{x}$$

Thus:

$$x = \frac{h}{\tan \theta}$$

As the angle of elevation decreases, the shadow becomes longer.

Step 1: Find the shadow length when angle is 60° .

Let height of tower be:

h

Let shadow length at 60° be:

$$x_1$$

Using:

$$\tan 60^\circ = \frac{h}{x_1}$$

$$\sqrt{3} = \frac{h}{x_1}$$

$$x_1 = \frac{h}{\sqrt{3}}$$

Step 2: Find the shadow length when angle is 30° .

Let shadow length at 30° be:

$$x_2$$

Using:

$$\tan 30^\circ = \frac{h}{x_2}$$

$$\frac{1}{\sqrt{3}} = \frac{h}{x_2}$$

$$x_2 = h\sqrt{3}$$

Step 3: Use the condition on difference of shadows.

Given:

$$x_2 - x_1 = 30$$

Substituting values:

$$h\sqrt{3} - \frac{h}{\sqrt{3}} = 30$$

Taking LCM:

$$\frac{3h - h}{\sqrt{3}} = 30$$

$$\frac{2h}{\sqrt{3}} = 30$$

$$2h = 30\sqrt{3}$$

$$h = 15\sqrt{3}$$

Therefore,

$$15\sqrt{3} \text{ meter}$$

Quick Tip: Remember:

•

$$\tan \theta = \frac{\text{Height}}{\text{Shadow}}$$

•

$$\tan 60^\circ = \sqrt{3}$$

•

$$\tan 30^\circ = \frac{1}{\sqrt{3}}$$

10. The mean of 10 observations was calculated as 40. It was detected on rechecking that the value of one observation 45 was wrongly copied as 15. Find the correct mean.

- (A) 43
- (B) 34
- (C) 40
- (D) 60

Correct Answer: (A) 43

Solution:

Concept: Mean is given by:

$$\text{Mean} = \frac{\text{Sum of observations}}{\text{Number of observations}}$$

If one observation is wrongly recorded, first correct the total sum and then calculate the corrected mean.

Step 1: Calculate the incorrect total sum.

Given:

$$\text{Mean} = 40$$

Number of observations:

$$n = 10$$

Thus:

$$\text{Incorrect sum} = 40 \times 10$$

$$= 400$$

Step 2: Correct the wrongly copied observation.

Actual observation:

$$45$$

Wrongly copied as:

$$15$$

Difference:

$$45 - 15 = 30$$

Correct sum:

$$400 + 30$$

$$= 430$$

Step 3: Calculate the correct mean.

$$\text{Correct mean} = \frac{430}{10}$$

$$= 43$$

Therefore,

$$\boxed{43}$$

Quick Tip: Remember:

-

$$\text{Mean} = \frac{\text{Sum}}{n}$$

- If an observation is misread:

$$\text{Correct Sum} = \text{Wrong Sum} + (\text{Correct value} - \text{Wrong value})$$