GATE 2022 Aptitude Solution 6th Feb Session

Memory Based

GATE 2022 Aptitude Questions - 6th Feb

Hello GATE Aspirant!

Hope you did the paper to your best level. Here are the solutions and answers to the aptitude questions from the papers conducted on 5th February.

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Questions & Solutions

Q1) A cube is having a spherical ball of radius r placed inside such that it just fits in. The volume of the cube in terms of r required will be ____

a) 8r^3 b) 4r^3
c) r^3 d) 4r^2

Hint

This is a very simple question. To fit in a spherical ball perfectly into a cube with side 'a', the diameter of the sphere must be equal to the side of the cube.

i.e., 2r = a

The volume of cube = a^3 = (2r)^3. Therefore, the answer is 8r^3.

Q2) The seating arrangement for six persons is based on the following conditions.

P sits next to S and T

Q sits diametrically opposite to P

Shortest between S and R equal to the shortest distance between T and U

Then Q is the neighbour of _____

a) S and T b) S and P

c) U ant T d) R and U

Hint

This question requires knowledge of seating arrangements. In this particular question, the conditions for arrangement is fairly easy. The only tricky word to understand is "diametrically opposite" which simply means sitting opposite to each other in a circular seating arrangement. Therefore, getting the right seating arrangement will help in finding the answer.

The answer to this question for your reference is R and U.

Q3) From the statements and conclusions given below, identify the conclusions that could be logically inferred

Statement 1: Some engineers are writers

Statement 2: No writer is an actor

Statement 3: All actors are engineers

Conclusion 1: Some writers are engineers

Conclusion 2: All engineers are actors

Conclusion 3: No actor is a writer

Conclusion 4: Some actors are writers

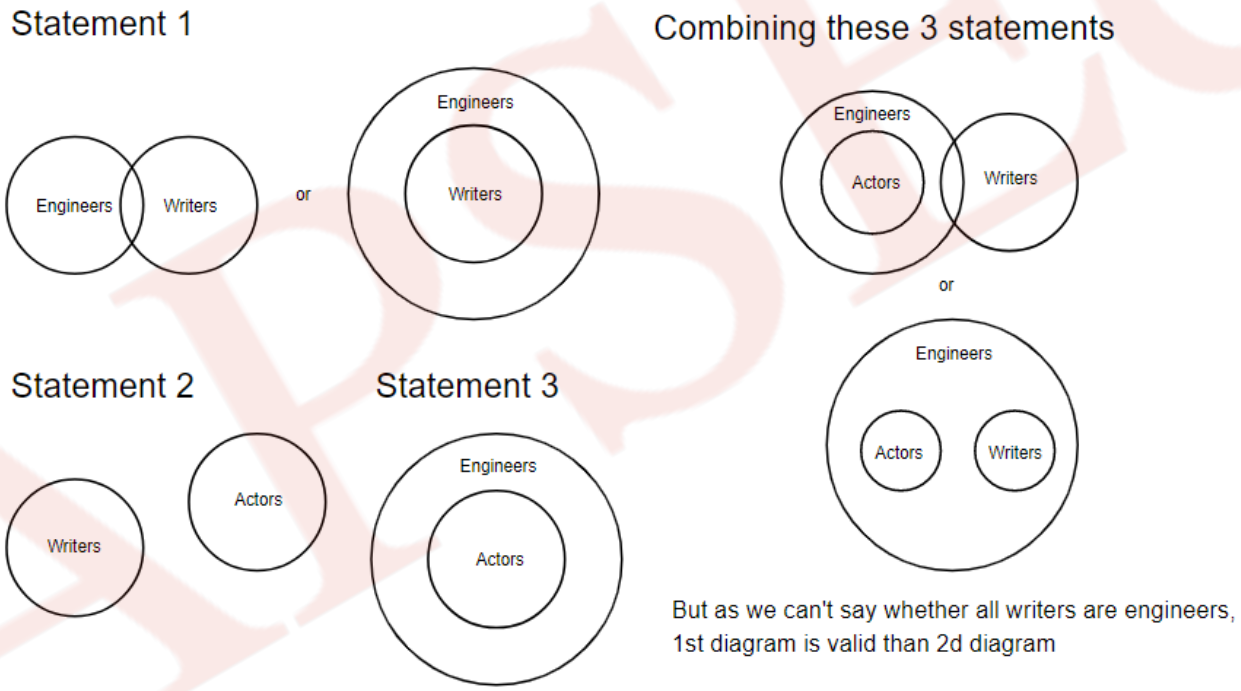
a) Conclusion 1 only follows b) Conclusion 1 and 3 follows

c) Conclusion 1 and 4 follows d) Conclusion 3 only follows

Hint

To solve this question, knowledge of syllogism is required. Syllogism involves forming Venn diagrams out of given statements and inferring them to find out the logical conclusions.

Given below are the Venn diagrams for the three statements mentioned in the question, inferring which helps in finding out the logical conclusions.



Therefore, conclusions 1 and 3 follows.

Q4) A sum of money is to be distributed among P, Q, R and S in the proportion 5:2:4:3 respectively. If R gets 1000 more than S, what is the share of Q

a) 3000 b) 4000

c) 2000 d) 2200

Hint

Framing the equation will be enough to instantly get the correct answer for this question.

Let's assume that amounts P, Q, R, and S will get are 5x, 2x, 4x, and 3x respectively. From the question,

4x = 3x + 1000
x = 1000

Here is the tricky part, our objective is not to find x value, our objective is to find the share of Q which is 2x. Therefore, the answer is 2000.

Q5) Consider the following inequalities

2x - 1 > 7
2x - 9 < 1

Which of the following expressions satisfy the above two inequalities?

a) $x \leq -4$ b) $-4 < x \leq 4$
c) $x \geq 5$ d) $4 < x < 5$

Hint

This is a simple question. Solve both the inequalities to get the necessary condition to satisfy the same inequality.

2x-1>7 ⇒ 2x>8 ⇒ x>4
2x-9<1 ⇒ 2x<10 ⇒ x<5

The answer for this question by above said method is d) $4 < x < 5$

Q6) Four points P(0,1), Q(0,-3), R(-2,-1) and S(2,-1) represents the vertices of a quadrilateral. What is the area enclosed by the quadrilateral?

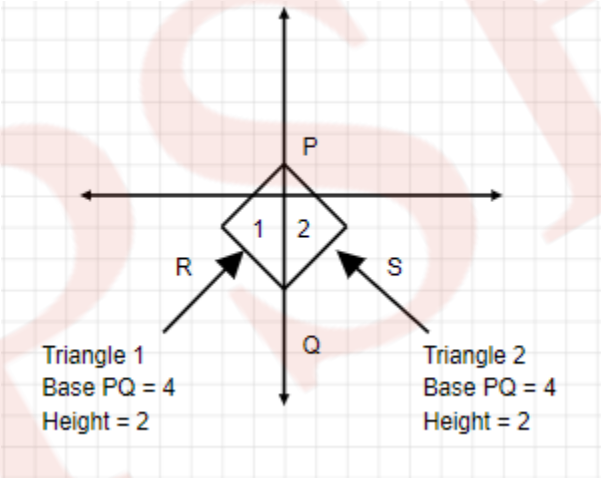
a) $8\sqrt{2}$ b) $2\sqrt{2}$

c) 8 d)4

Hint

Plot the graph and try to find the dimensions of the quadrilateral. As the sides are known imagine the quadrilateral as two triangles and summing the area of those two triangles gives the area of the quadrilateral.

For ease, the graph is given below. And the answer is 8 unit^2.



Q7) Consider the following inequalities

$3p - q > 4$

$3q - p < 12$

Which of the following expressions satisfy the above two inequalities?

a) $p+q<8$ b) $8 \leq p+q<16$

c) $p+q \geq 16$ d) $p+q = 8$

Hint

This is a simple question. Solve both the inequalities to get the necessary condition to satisfy the same inequality. Adding the two inequalities,

2p + 2q <16 ⇒ p+q < 8

Therefore, the answer is a) p+q<8.

Q8) Two pipes A and B can fill a storage tank with water in 10 and 6 minutes respectively. Pipe C draws out from the storage tank at a rate of 34 litres per minute. A, B, and C operate at a constant rate. If it takes one hour to completely empty a full storage take with all the pipes operating simultaneously. What is the capacity of the storage tank (in litres)?

a) 120 b) 60
c) 26.8 d) 127.5

Hint

Solving this question requires knowledge of work and time relations. Here the tank is already full and still pipe C successfully withdraws the entire tank. Therefore, work done by C in1 a minute can be found as,

60/17 (i.e, total time/(A+B+1))

It is said in the question that C operates at 34 litres per minute. Now, by multiplying the 1 min work done by C to empty the tank with the discharge of pipe C the tank capacity could be found as,

460/17* 34 = 120 litres.

Therefore, the answer is 120 litres.

Q9) Mr. X speaks _____ japanesse _____chinesse

a) neither - nor b) also - but
c) either - nor d) neither - but

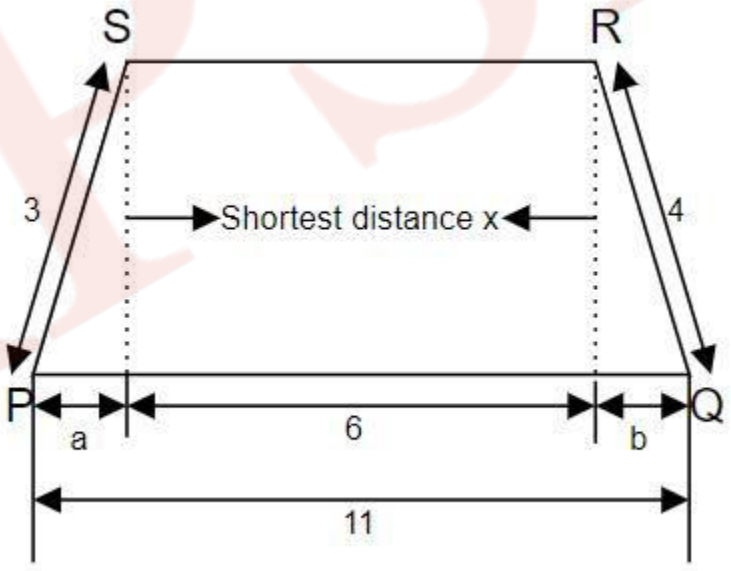
Hint

Knowledge of conjunction is enough to answer this question. The correct answer is a) neither - nor.

Q10) Given the sides of a trapezium, find the shortest distance between PQ and RS which are opposite to each other. PQ = 11, QR = 4, RS = 6, RP = 3.

Hint

The shortest distance between PQ and RS is shown below.



a+b = 5

By Pythagoreans theorem,

x^2 + a^2 = 3^2,

x^2 + b^2 = 4^2

Subtract the above equations, we get,

b^2 - a^2 = 16 - 9 ⇒ 7

(b-a) * (b+a) = 7 ⇒ b-a = 7/5, and b+a = 5, on solving these two equations, we get,

a = 9/5, and b = 16/5

Now,

x^2 = 16 - 9/5 ⇒ x = 2.4