

# GATE 2022

Computer Science & IT

▶ **General Aptitude  
(Question With Solution)**

## SET-1

1. The \_\_\_\_\_ is too high for it to be considered \_\_\_\_\_.

- A. fair / fare                      B. fare / fair  
C. fare / fare                      D. fare / fair

**Ans.** D

**Sol.** • Fare means the money paid for a journey on public transport.

- Fair means treating people equally.

2. A function  $y(x)$  is defined in the interval  $[0, 1]$  on the  $x$ -axis as

$$y(x) = \begin{cases} 2 & \text{if } 0 \leq x < \frac{1}{3} \\ 3 & \text{if } \frac{1}{3} \leq x < \frac{3}{4} \\ 1 & \text{if } \frac{3}{4} \leq x \leq 1 \end{cases}$$

Which one of the following is the area under the curve for the interval  $[0, 1]$  on the  $x$ -axis?

- A.  $\frac{5}{6}$                                       B.  $\frac{6}{5}$   
C.  $\frac{13}{6}$                                       D.  $\frac{6}{13}$

**Ans.** C

**Sol.** Total Area  $\Rightarrow$

$$= \left\{ \frac{1}{3} * 2 \right\} + \left\{ \left( \frac{3}{4} - \frac{1}{3} \right) * 3 \right\} + \left\{ \left( 1 - \frac{3}{4} \right) * 1 \right\}$$

$$= \frac{2}{3} + \left\{ \frac{5}{12} * 3 \right\} + \frac{1}{4}$$

$$= \frac{2}{3} + \frac{5}{4} + \frac{1}{4}$$

$$= \frac{2}{3} + \frac{6}{4}$$

$$= \frac{13}{6}$$

3. Let  $r$  be a root of the equation  $x^2 + 2x + 6 = 0$ .

Then the value of the expression  $(r + 2)(r + 3)(r + 4)(r + 5)$  is

- A. 51                                      B. -51  
C. 126                                      D. -126

**Ans.** D

**Sol.**  $x^2 + 2x + 6 = 0$

$$x^2 + 2x = -6$$

Now when we solve  $(r + 2)(r + 3)(r + 4)$

$(r + 5)$ , we get

$$\Rightarrow (r^2 + 2r + 4r + 8)(r^2 + 3r + 5r + 15)$$

$$\Rightarrow (4r + 2)(6r + 9)$$

$$\Rightarrow 6 \{ 4(r^2 + 2r) + 3 \}$$

$$\Rightarrow 6(-24 + 3)$$

$$\Rightarrow 6(-21)$$

$$\Rightarrow -126.$$

4. Given below are four statements:

Statement 1: All students are inquisitive.

Statement 2: Some students are inquisitive.

Statement 3: No student is inquisitive.

Statement 4: Some students are not inquisitive.

From the given four statements, find the two statements that CANNOT BE TRUE simultaneously, assuming that there is at least one student in the class.

- A. Statement 1 and Statement 3  
B. Statement 1 and Statement 2  
C. Statement 2 and Statement 4  
D. Statement 3 and Statement 4

**Ans. A**

**Sol.** Statement 1, says that all students are inquisitive while statement B says that no student is inquisitive, these two statements cannot be true simultaneously.

**5.** A palindrome is a word that reads the same forwards and backwards. In a game of words, a player has the following two plates painted with letters.



From the additional plates given in the options, which one of the combinations of additional plates would allow the player to construct a five-letter palindrome.

The player should use all the five plates exactly once. The plates can be rotated in their plane.

- A. 

D
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D
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J
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- B. 

R
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V
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R
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- C. 

Z
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E
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D
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- D. 

I
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1
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Y
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**Ans. B**

**Sol.** As per the question we have to make a five-letter palindrome so the correct answer will be.



After rotating the plates, we get:



**6.** Some people believe that "what gets measured, improves". Some others believe that "what gets measured, gets gamed". One possible reason for the difference in the beliefs is the work culture in organizations. In

organizations with good work culture, metrics help improve outcomes. However, the same metrics are counterproductive in organizations with poor work culture.

Which one of the following is the CORRECT logical inference based on the information in the above passage?

- A. Metrics are useful in organizations with poor work culture
- B. Metrics are useful in organizations with good work culture
- C. Metrics are always counterproductive in organizations with good work culture
- D. Metrics are never useful in organizations with good work culture

**Ans. B**

**Sol.** In the passage it is stated that in organizations with good work culture, metrics help improve outcomes' so we can clearly say that option B supports the passage.

**7.** In a recently conducted national entrance test, boys constituted 65% of those who appeared for the test. Girls constituted the remaining candidates and they accounted for 60% of the qualified candidates.

Which one of the following is the correct logical inference based on the information provided in the above passage?

- A. Equal number of boys and girls qualified
- B. Equal number of boys and girls appeared for the test
- C. The number of boys who appeared for the test is less than the number of girls who appeared

D. The number of boys who qualified the test is less than the number of girls who qualified

**Ans.** D

**Sol.** Suppose the number of students be 100 Now as per the given Condition:

Number of boys who appeared for the test =65

Number of girls who appeared for the test =100 – 65 = 35.

Now if 60% of the qualified students are girls then rest 40% are boys.

**8.** A box contains five balls of same size and shape. Three of them are green coloured balls and two of them are orange coloured balls. Balls are drawn from the box one at a time. If a green ball is drawn, it is not replaced. If an orange ball is drawn, it is replaced with another orange ball.

First ball is drawn. What is the probability of getting an orange ball in the next draw?

- A.  $\frac{1}{2}$                       B.  $\frac{8}{25}$   
C.  $\frac{19}{50}$                       D.  $\frac{23}{50}$

**Ans.** D

**Sol.** Case 1: If first ball drawn is green then, while drawing the second ball (orange), we will be left with 4 balls

$$\frac{3}{5} + \frac{2}{4} = \frac{3}{10}$$

Case 2: If the first ball drawn is orange, then, in the second draw we still have 5 balls as the ball can be replaced.

$$\frac{2}{5} \times \frac{2}{5} = \frac{4}{25}$$

so total probability will be:

$$\frac{3}{10} + \frac{4}{25} = \frac{23}{50}$$

**9.** The corners and mid-points of the sides of a triangle are named using the distinct letters P, Q, R, S, T and U, but not necessarily in the same order. Consider the following statements:

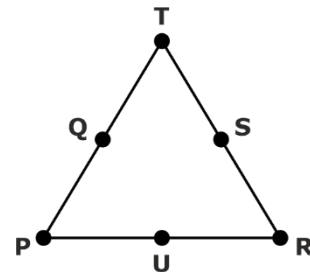
- The line joining P and R is parallel to the line joining Q and S.
- P is placed on the side opposite to the corner T.
- S and U cannot be placed on the same side.

Which one of the following statements is correct based on the above information?

- A. P cannot be placed at a corner  
B. S cannot be placed at a corner  
C. U cannot be placed at a mid-point  
D. R cannot be placed at a corner

**Ans.** B

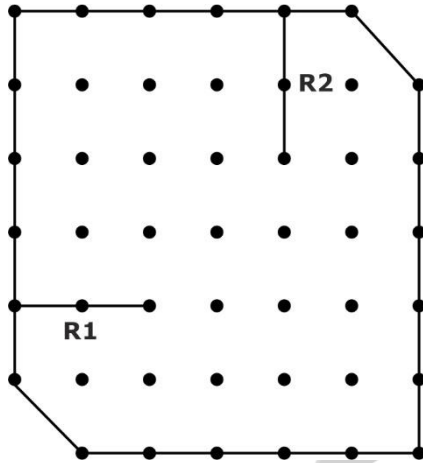
**Sol.** When we draw the diagram based on the given condition, we get



This clearly depicts that S cannot be on any of the corners. However, there are more possible arrangements but in all those arrangements S cannot be placed on the corners according to the criteria provided in the question.

**10.** A plot of land must be divided between four families. They want their individual plots to be similar in shape, not necessarily equal in area.

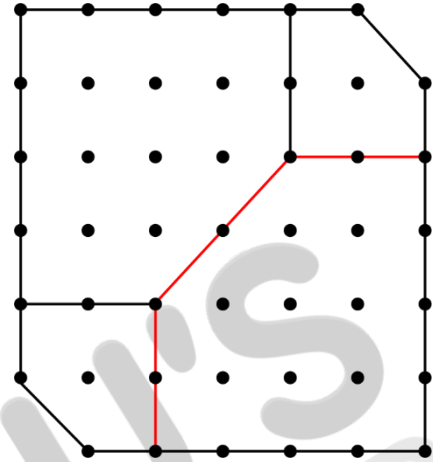
The land has equally spaced poles, marked as dots in the below figure. Two ropes, R1 and R2, are already present and cannot be moved. What is the least number of additional straight ropes needed to create the desired plots? A single rope can pass through three poles that are aligned in a straight line.



- A. 2
- B. 4
- C. 5
- D. 3

**Ans. D**

**Sol.**



We need only 3 lines, as it is clearly mentioned in the question that the shape should be similar, and the area should not be equal.

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