Disclaimer - This data may not be accurate as it is based on memory of test takers. This will be a precise tool for students to understand the type of questions to expect in Numerical Ability, Verbal Ability and Mathematics Sections in upcoming slots.

We wish you All the Very Best for your GATE-2018.

Section-I: General Ability

1. Seven machines take 7 minutes to make 7 identical toys. At the same time, how many minutes would it take for 100 machines to make 100 toys?

(A) 1 (B) 7 (C) 100 (D) 700

Key: (B)

Sol: $\frac{7\times 7}{7}=\frac{100\times T_2}{100}$

$\Rightarrow T_2 = 7$ minutes

2. "Her____ should not be confused with miserliness she is every willing to assist those in need"

The word that best fills the bank in the above sentence is

(A) cleanliness (B) punctuality (C) frugality (D) greatness

Key: (C)

Sol: The sentence explains that the person spoken of is not miserly, since she is quite prepared to be generous. So for the sentence to make sense, the word filling the blank has to be something that is consistent with generosity and yet might, by those without a full understanding of her behaviour, be mistaken for miserliness. The words "frugality" and thrift fulfill this requirement and yield two sentences that are alike in meaning. Thus the correct answer is **frugality.**

3. A number consists of two digits. Then sum of the digits is 9. If 45 is subtracted from the number, its digits are interchanged. What is the number?

(A) 63 (B) 72 (C) 81 (D) 90

Key: (B)

Sol: Let number be 'xy'

Given $x+y=9 \quad ...(i)$

& $xy-45=yx$

$\Rightarrow (10x+xy)-45=10y+x$

$\Rightarrow 9x-9y=45$

$\Rightarrow x-y=5 \quad ...(ii)$

solving $(i)\&(ii) \Rightarrow x=7, y=2$

Required number $=72$

4. Going by the _____that many hands make light work, the school _____ involved all the students in the task". The words that best fill the blanks in the above sentence are

(A) Principle, Principal (B) Principal, Principle

(C) Principle, Principle (D) Principal, Principal

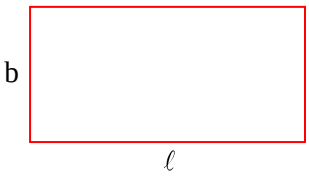
Key: (A)

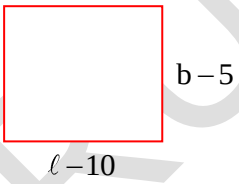
5. A rectangle becomes a square when its length and breadth are reduced by 10m & 5m respectively. During this process, the rectangle losses $650m^2$ of area. What is the area of the original rectangle (in sq.m)?

(A) 1125 (B) 2250 (C) 2924 (D) 4500

Key: (B)

Sol:





Let us consider original area of rectangle $A = \ell b$

For square all sides are equal

$\ell - 10 = b - 5$

$\ell - b = 5 \quad ...(1)$

By the given condition

$A - 650 =$ Area of square

$A - 650 = (\ell - 10)(b - 5)$

$A - 650 = \ell b - 10b - 5\ell + 50$

$A - 650 = A - 10b - 5\ell + 50$

$2b + \ell = 140 \quad ...(2)$

By solving (1) & (2)

$\ell = \frac{150}{3}, \quad b = \frac{135}{3}$

Area of rectangle $A = \ell \times b = \frac{150}{3} \times \frac{135}{3} = 2250m^2$

6. Given that a + b are integers and $a + a^2b^3$ is odd.

Which one of the following statements is correct?

(A) a & b are both odd (B) a & b are both even

(C) a is even & b is odd (D) a is odd and b is even

Key: (D)

Sol: By verifying options

Let us consider a=1, b=2

$a + a^2b^3 = 1 + 1^2 \times 2^3 = 9$ i.e., odd

Only this condition is valid.

7. Consider the following three statements

i. Some roses are red

ii. All red flowers fade quickly

iii. Some roses fade quickly

Which of the following statements can be logically inferred from the above statements?

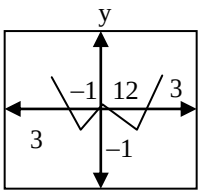
(A) If (i) true & (ii) false, then (ii) false

(B) If (i) true & (ii) false, then (iii) true

(C) If (i) & (ii) are true, then (iii) true

(D) If (i) & (ii) false, then (iii) false

8. Which of the following functions describe the graph shown below figure

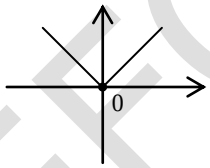


(A) $y=\left||x|+1\right|-2$ (B) $y=\left||x|-1\right|-1$ (C) $y=\left||x|+1\right|-1$ (D) $y=\left||x|-1\right|-1$

Key: (B)

Sol: Step (1)

$y=|x|$

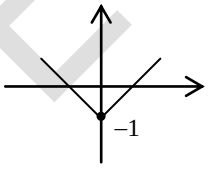


Step (2)

$y+1=|x|$

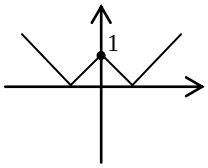
(or)

$y=|x|-1$



Step (3)

$y=\left||x|-1\right|$

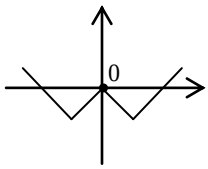


Step (4)

$y+1=\left||x|-1\right|$

(or)

$y=\left||x|-1\right|-1$



9. Form the time the front of a trains enters a platform, it takes 25 sec for the buck of the train to leave the platform, while travelling at a constant speed of 54 km/h. At the same speed, it takes 14sec to pass a man running at 9km/h m the same direction as the train. What is the length of the train and that of the platform in meters respectively?

(A) 210 & 140 (B) 162.5&187.5 (C) 245 &130 (D) 175 & 200

Key: (D)

Sol: Let Train length = x

Platform length = y

$$\underset{\text{Distance}}{\{x+y\}} = \underset{\text{Time}}{\{25\}} \times \underset{\text{Speed}}{\left(54\times\frac{5}{18}\right)} = 375$$

$$\text{also, } \frac{x}{\underset{\text{Relative speed}}{(54-9)\times\frac{5}{18}}} = 14$$

$\Rightarrow x = 175$

$\Rightarrow y = 200$

10. For integers a, b & c what would be the minimum & maximum values respectively of a+b+c if $\log|a|+\log|b|+\log|c| = 0$?

(A) –3 & 3 (B) –1 & –1 (C) –1 & 3 (D) 1 & 3

Key: (A)

Sol: Given $\log|a|+\log|b|+\log|c| = 0$

$\Rightarrow \log_e|a||b||c| = 0$

$\Rightarrow |a||b||c| = 1$

Minimum value $= -1-1-1 = -3$

Maximum value $= 1+1+1 = 3$

Section-II

1. The height (in mm) for a 125 mm sine bar to measure a taper of $27°32'$ on a flat work piece is _____. (correct to 3 decimals)

2. A six faced fair dice is rolled 5 times. The probability (in %) of obtaining "ONE" at least four times is

(A) 33.3 (B) 3.33 (C) 0.33 (D) 0.0033

Key: (C)

Sol: $n=5,\ p=P(1)=\frac{1}{6}$

$q=P(\text{not } 1)=1-\frac{1}{6}=\frac{5}{6}$

By Binomial distribution

$P(x\geq 4)=P(x=4)+P(x=5)$

$=5C_4\left(\frac{1}{6}\right)^4\left(\frac{5}{6}\right)^{5-4}+5C_5\left(\frac{1}{6}\right)^5\left(\frac{5}{6}\right)^{5-5}\cong 0.33\%$

3. The rank of the matrix $\begin{bmatrix}-4 & 1 & -1\\ -1 & -1 & -1\\ 7 & -3 & 1\end{bmatrix}$ is

(A) 1 (B) 2 (C) 3 (D) 4

Key: (B)

Sol: Let $A=\begin{bmatrix}-4 & 1 & -1\\ -1 & -1 & -1\\ 7 & -3 & 1\end{bmatrix}$

$|A|=-4(1-3)-1(-1+7)-1(3+7)=0$

Consider a submatrix, $\begin{vmatrix}-4 & 1\\ -1 & -1\end{vmatrix}_{2\times 2}=4+1=5\neq 0$

$\Rightarrow$ Rank of $A=2$

4. Four red balls, four green balls and four blue balls are put in a box. Three balls are pulled out of the box at random one after another _____replacement. The probability that all the three balls are red is

(A) $\frac{1}{72}$ (B) $\frac{1}{55}$ (C) $\frac{1}{36}$ (D) $\frac{1}{27}$

Key (B)

Sol: 4R

4G

4B

Required probability = $\frac{4}{12}\times\frac{3}{11}\times\frac{2}{10}=\frac{1}{55}$

5. According to the mean value theorem, for a continuous function f(x) in the interval [a, b], there exists a value ξ in this interval such that $\int_a^b f(x)dx =$

(A) $f(\xi)(b-a)$ (B) $f(b)(\xi-a)$ (C) $f(a)(b-\xi)$ (D) 0

Key: (D)

Sol: By Mean Value Theorem,

$$f'(\xi)=\frac{f(b)-f(a)}{b-a}$$

$$\Rightarrow \int_a^b f(x)dx=0$$

6. F(z) is a function of the complex variable $z=x+y$ given by $F(z)=iz+k\,Re(z)+Im(z)$. For what value of 'k' will F(z) satisfy the Cauchy-Riemann equations?

(A) 0 (B) 1 (C) –1 (D) y

Key: (B)

Sol: $F(z)=iz+k\,Re(z)+i\,Im(z)$

$=i(x+iy)+kx+iy$

$=ix-y+kx+iy$

$=\underbrace{(kx-y)}_{u}+i\underbrace{(x+y)}_{v}$

By Cauchy-Riemann equations $u_x=v_y$ & $u_y=-v_x$

$\Rightarrow k=1$

Subject wise Analysis-

ME-2018 Gate Analysis			
	1 Mark	**2 Marks**	**Total**
Engineering Mechanics	0	2	2
Strength of Materials	4	5	9
Fluid Mechanics	3	4	7
Design of Machine Elements	2	2	4
Theory of Machines	2	3	5
Manufacturing	6	4	10
Industrial Engineering	1	2	3
Heat Transfer	0	1	1
Thermodynamics	2	3	5
Engineering Mathematics	5	4	9

GATE-2018 Paper was more or less in same line with GATE -2017 paper. There was some changes in weightage across sections. This year we saw Strength of Materials had more questions than last year. Students of other streams can expect such changes in their streams as well. We expect cutoff to remain same like GATE-2017.