Quiz Date: 4th March 2020

Directions (1-5): In each question two equations numbered I and II are given. You have to solve both the equations and mark appropriate answer.
(a) If $x < y$
(b) If $x > y$
(c) If $x \geq y$
(d) If $x \leq y$
(e) If $x = y$ or no relation can be established

Q1. I. $6x^2 - 7x + 2 = 0$
II. $2y^2 - 7y + 6 = 0$

Q2. I. $15x^2 + 2x - 1 = 0$
II. $6y^2 - y - 1 = 0$

Q3. I. $\sqrt{361}\,x + \sqrt{289}\,y = 89$
II. $\sqrt{289}\,x + \sqrt{361}\,y = 91$

Q4. I. $2x^3 = 432$
II. $7y^2 = 343$

Q5. I. $\frac{1}{3}(x^2 + 2) = x$
II. $\frac{1}{5}(y^2 + 6) = y$

Q6. The efficiency of Raj is $66\frac{2}{3}\%$ more than that of Pankaj. Pankaj with the help of Veer can complete a piece of work in 12 days while Veer alone can complete the same work in 4 days more than that of Pankaj and Veer together, then in how many days Raj alone can complete the same work?
(a) 26 days
(b) 28 days
(c) 36 days
(d) $28\frac{4}{5}$ days
(e) $33\frac{1}{3}$ days

Q7. The side of square is 25% more than that of equilateral triangle. If the area of equilateral triangle is $4\sqrt{3}$ cm^2. find the perimeter of square?
(a) 30 m
(b) 26 m
(c) 40 m
(d) 24 m
(e) 20 m

Q8. A solid metal cone having radius 7 cm and height 12 cm long is melted into 77 small cubes. Find the surface area of single small cube.
(a) 36 m^2
(b) 24 m^2
(c) 20 m^2
(d) 25 m^2
(e) 32 m^2

Q9. The simple interest and compound interest on a certain sum of money at a certain rate of interest for two years is Rs. 5000 and Rs. 5250 respectively. Find the compound interest on the same sum at same rate of interest for 3 years?
(a) Rs. 7700
(b) Rs. 8175
(c) Rs. 8275
(d) Rs. 7520
(e) Rs. 7760

Q10. A shopkeeper marks the price of an article 40% above of its cost price and allows a discount of $14\frac{2}{7}\%$ on its marked price. If marked price of the article is Rs. 350 then find profit obtained by shopkeeper?
(a) Rs. 30
(b) Rs. 45
(c) Rs. 20
(d) Rs. 50
(e) Rs. 65

Directions (11-15): What will come in place of (?) in the following number series?
Q11. 2, 3, 8, 27, 112, ?
(a) 486
(b) 584
(c) 565

(d) 386
(e) 498

Q12. 2, 3, 5, 7, ?, 13, 17
(a) 9
(b) 8
(c) 10
(d) 11
(e) 13

Q13. 16, 34, 55, 82, 118, ?
(a) 166
(b) 184
(c) 142
(d) 198
(e) 204

Q14. 110, 156, 272, 342, 506, ?
(a) 726
(b) 686
(c) 698
(d) 862
(e) 812

Q15. 2, 3, 7, 25, 121, ?
(a) 625
(b) 676
(c) 721
(d) 805
(e) 727

Solutions

S1. Ans.(a)

Sol.

I) $6x^2 - 7x + 2 = 0$
$6x^2 - 4x - 3x + 2 = 0$
$2x(3x - 2) - 1(3x - 2) = 0$
$x = \frac{2}{3}$ or $\frac{1}{2}$

II) $2y^2 - 7y + 6 = 0$
$2y^2 - 4y - 3y + 6 = 0$
$2y(y - 2) - 3(y - 2) = 0$

$y = \frac{3}{2}$ or 2
$\therefore x < y$

S2. Ans.(e)
Sol.
I) $15x^2 + 2x - 1 = 0$
$15x^2 + 5x - 3x - 1 = 0$
$5x(3x + 1) - 1(3x + 1) = 0$
$x = -\frac{1}{3}$ or $\frac{1}{5}$

II) $6y^2 - y - 1 = 0$
$6y^2 - 3y + 2y - 1 = 0$
$3y(2y - 1) + 1(2y - 1) = 0$
$y = \frac{1}{2}$ or $\frac{-1}{3}$

No relation between x and y

S3. Ans.(a)
Sol.
$19x + 17y = 89$ ...(i)
$17x + 19y = 91$ ...(ii)
On solving both equations , we get

$x = 2$
$y = 3$
$\therefore x < y$

S4. Ans.(e)
Sol.
I) $2x^3 = 432$
$x^3 = 216$
$x=6$

II) $7y^2 = 343$
$y^2=49$
$y= +7, -7$

∴ No relation can be established.

S5. Ans.(d)
Sol.
I) $x^2 - 3x + 2 = 0$
$(x - 1)(x - 2) = 0$
$x = 1, \quad 2$

II) $y^2 - 5y + 6 = 0$
$y^2 - 3y - 2y + 6 = 0$
$y(y - 3) - 2(y - 3) = 0$
$y = 3$ or 2

$\therefore\ x \leq y$

S6. Ans.(d)
Sol.
One day work of Pankaj = $\frac{1}{12} - \frac{1}{16} = \frac{4-3}{48} = \frac{1}{48}$
so, Pankaj can complete the work in 48 days alone
$\therefore$ Time taken by Raj = $\frac{3}{5} \times 48 = 28\frac{4}{5}$ days

S7. Ans.(e)
Sol.
Let side of triangle = a meters
$\frac{\sqrt{3}}{4}a^2 = 4\sqrt{3}$
$a^2 = 16$
$a = 4$ m
$\therefore$ perimeter of square = $4 \times \frac{5}{4}$ =5 cm
Required perimeter = 4× side of square = $4 \times 5 = 20\ cm$.

S8. Ans.(b)
Sol. Let side of one small cube is x m.
$\therefore 77x^3 = \frac{1}{3} \times \frac{22}{7} \times 7 \times 7 \times 12$
$\Rightarrow x^3 = 8 \Rightarrow x = 2$ m
$\Rightarrow$ Required surface area = $6x^2$
$= 6 \times 4 = 24\ m^2$

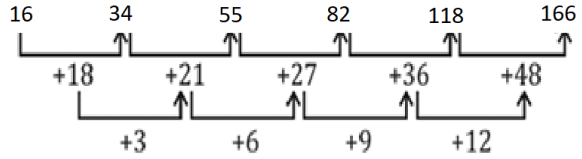
S9. Ans.(c)
Sol.
Let sum = Rs. P and rate of interest = R%
$\therefore \frac{2PR}{100} = 5000 \quad \& \quad P\left[\left(1+\frac{R}{100}\right)^2 - 1\right] = 5250$ ...(i)
But we know that
C.I. – S.I. (for two years) = $\frac{PR^2}{100^2}$
$\therefore \frac{PR^2}{100^2} = 5250 - 5000$
$\frac{PR^2}{100^2} = 250$ ...(ii)
From equation (i) ÷ (ii)
$\frac{2PR}{100} \times \frac{100^2}{PR^2} = 20$
R = 10%
Put this value of R in eq. (i),
$\frac{2\times P\times 10}{100} = 5000$
⇒ P = Rs. 25000
∴ Required answer = $25000 \times \frac{11}{10} \times \frac{11}{10} \times \frac{11}{10} - 25000$
= Rs.8275

S10. Ans.(b)
Sol.
40% = $\frac{2}{5}$
And, $14\frac{2}{7}\% = \frac{100}{7}\% = \frac{1}{7}$
Selling price = $\frac{6}{7}$ *market price* = $\frac{6}{5}$ *cost price*
So, Selling price = Rs. 300
Cost price = Rs. 250
Required profit = 300 – 250 = Rs.50

S11. Ans.(c)
Sol.
Pattern of Series is
2 × 1 + 1 = 3
3 × 2 + 2 = 8
8 × 3 + 3 = 27
27 × 4 + 4 = 112
112 × 5 + 5 = 565

S12. Ans.(d)
Sol.
Pattern of series –
Prime number 2,3,5,7,11,13,17

S13. Ans.(a)
Sol.
Pattern is



S14. Ans.(e)
Sol.
Pattern Series is
$11^2 - 11 = 121 - 11 = 110$
$13^2 - 13 = 169 - 13 = 156$
$17^2 - 17 = 289 - 17 = 272$
$19^2 - 19 = 361 - 19 = 342$
$23^2 - 23 = 529 - 23 = 506$
$29^2 - 29 = 841 - 29 = 812$

S15. Ans.(c)
Sol.
Series is
$2 \times 2 - 1 = 3$
$3 \times 3 - 2 = 7$
$7 \times 4 - 3 = 25$
$25 \times 5 - 4 = 121$
$121 \times 6 - 5 = 721$