

**Quiz Date: 13<sup>th</sup> March 2020**

Directions (1-5): In each of these questions, two equations (I) and (II) are given. You have to solve both the equations and give answer

- (a) if  $x > y$
- (b) if  $x \geq y$
- (c) if  $x < y$
- (d) if  $x \leq y$
- (e) if  $x = y$  or No relation can be established between  $x$  and  $y$ .

Q1. I.  $3x^2 - 25x + 50 = 0$   
II.  $5y^2 - 57y + 160 = 0$

Q2. I.  $x^2 - 80x + 1591 = 0$   
II.  $y^2 - 68y + 1147 = 0$

Q3. I.  $2x^2 + 3x - 324 = 0$   
II.  $3y^2 - 20y + 32 = 0$

Q4. I.  $4x - 31\sqrt{x} + 60 = 0$   
II.  $5y - 46\sqrt{y} + 105 = 0$

Q5. I.  $6x^2 + 23\sqrt{3}x + 60 = 0$   
II.  $4y^2 + 33\sqrt{2}y + 135 = 0$

Q6. A vessel contains 60 lit of pure honey. If  $m$  lit of pure honey is replaced with  $n$  lit of water then ratio of honey to water becomes 10: 1 and if  $2m$  lit of pure honey were replaced by  $n$  lit of water, then ratio of honey to water becomes 8: 1. Find the value of ' $m + n$ '?

- (a) 10
- (b) 12
- (c) 15
- (d) 30
- (e) 20

Q7. The price of a car is Rs. 3,25,000. It was insured to 85% of its price. The car was damaged completely in an accident and the insurance company paid 90% of the insurance. What was the difference between the price of the car and the amount received?

- (a) Rs. 32,500
- (b) Rs. 48,750
- (c) Rs. 76,375
- (d) Rs. 81,250
- (e) Rs. 72,375

Q8. Nitin borrowed some money at the rate of 6% p.a. for the first three years, 9% p.a. for the next five years and 13% p.a. for the period beyond eight years. If the total interest paid by him at the end of eleven years is Rs. 8160, how much money did he borrow?

- (a) Rs. 8000
- (b) Rs. 10,000
- (c) Rs. 12,000
- (d) Rs. 10,500
- (e) Rs. 14,000

Q9. In how many different ways can the letters of the word 'JUDGE' be arranged in such a way that the vowels always come together?

- (a) 48
- (b) 120
- (c) 124
- (d) 160
- (e) 240



Q10. A box contains 2 white balls, 3 black balls and 4 red balls. In how many ways can 3 balls be drawn from the box, if at least one black ball is to be included in the draw?

- (a) 32
- (b) 48
- (c) 64
- (d) 96
- (e) 128

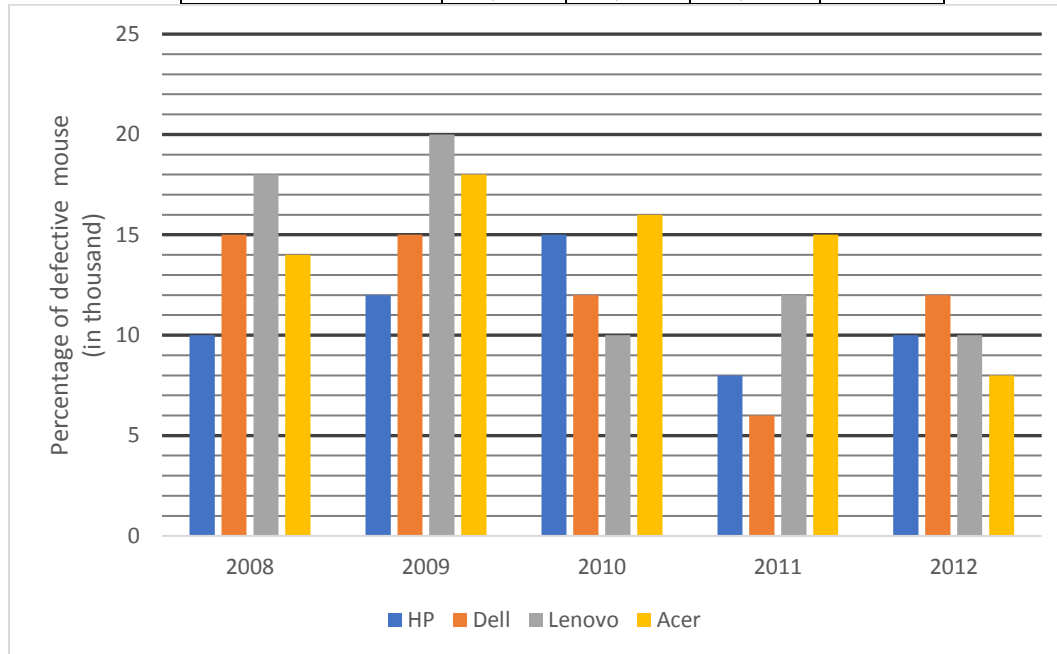
Directions (11-15): Study the following graphs carefully to answer the following questions. The following table shows the total number of mouse produced by different companies in 5 different years.

The bar graph shows the percentage of defective mouse out of total produced by each company every year.

Note: In table some data are missing. Find them first if they are required in any question and then proceed.

Companies \ Years	HP	Dell	Lenovo	Acer
2008	40,000	-	42,000	32,000

2009	-	36,000	-	36,000
2010	-	-	-	40,000
2011	54,000	48,000	48,000	-
2012	60,000	56,000	64,000	-



Q11. Total number of non-defective mouse produced by HP in the years 2008 and 2011 together is what percent more or less than that by Lenovo in 2010 and 2012 together. Total mouse produced by Lenovo in 2010 is 21.875% less than that in 2012. (find approximate value)

- (a) 12.5%
- (b) 16.5%
- (c) 10%
- (d) 18.5%
- (e) 14.5%

L1Difficulty 3

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Q12. What is the average number of defective mouse produced by Dell in the years 2008, 2010 and 2012 together? (It is given that ratio of mouse produced by Dell in 2008 and 2010 is 4 : 5 and total mouse produced by Dell in all the years together is 2,12,000)

- (a) 4550
- (b) 6440
- (c) 5440
- (d) 6550
- (e) None of these

L1Difficulty 3

QTags Miscellaneous DI

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Q13. If production cost of one mouse of Lenovo company in all the given years is Rs. 60 then find the total loss of Lenovo company in 2009, 2010 and 2011 together. Average production of mouse by Lenovo in all the given years is 49,600 and number of mouse produced by Lenovo in 2010 is 6000 more than that produced in 2009.

- (a) Rs. 8,62,800
- (b) Rs. 9,63,600
- (c) Rs. 12,73,600
- (d) Rs. 11,73,600
- (e) None of these

L1Difficulty 3

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Q14. What is the difference between non-defective mouse produced by all companies in 2012 and 2011 ? Mouse produced by Acer in 2011 is same as that by Lenovo in the same year and mouse produced by Acer in 2012 is same as that by Dell in 2012.

- (a) 34,560
- (b) 32,450
- (c) 32,960
- (d) 38,460
- (e) 35,580

L1Difficulty 3

QTags Miscellaneous DI

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Q15. Cost of one Acer mouse in all the given years is Rs. 90 and it is sold at a profit of  $33\frac{1}{3}\%$  in all the given years. Find the total profit earned by Acer on selling all mouse in all the given years. (use the data found in Que. 4)

- (a) Rs. 24,65,600
- (b) Rs. 18,75,400
- (c) Rs. 28,75,200
- (d) can't be determined
- (e) None of these

L1Difficulty 3

QTags Miscellaneous DI

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Directions (16 - 20): What will come in place of the question mark (?) in the following number series?

Q16. 2, 17, 47, ?, 152, 227

- (a) 23
- (b) 92

- (c) 93
- (d) 85
- (e) 89

Q17. 1, 1, 2, 4.5, ?, 30

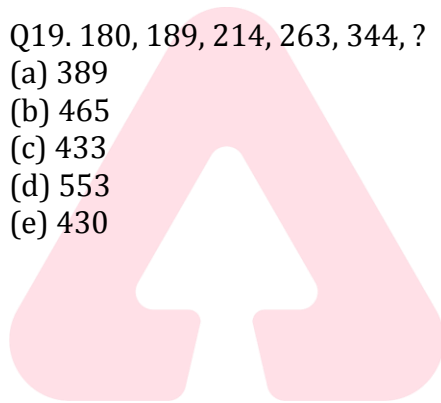
- (a) 10
- (b) 9
- (c) 11
- (d) 12
- (e) 7

Q18. 200, 100, 150, 75, 112.5, ?

- (a) 48.5
- (b) 54
- (c) 90.5
- (d) 56.25
- (e) 62.25

Q19. 180, 189, 214, 263, 344, ?

- (a) 389
- (b) 465
- (c) 433
- (d) 553
- (e) 430



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Q20. 7, 11, 38, 54, ?, 215

- (a) 179
- (b) 151
- (c) 125
- (d) 135
- (e) 115

### Solutions

S1. Ans.(d)

Sol.

I.  $3x^2 - 25x + 50 = 0$

$$3x^2 - 15x - 10x + 50 = 0$$

$$3x(x - 5) - 10(x - 5) = 0$$

$$(3x - 10)(x - 5) = 0$$

$$x = \frac{10}{3}, 5$$

$$\text{II. } 5y^2 - 57y + 160 = 0$$

$$5y^2 - 25y - 32y + 160 = 0$$

$$5y(y - 5) - 32(y - 5) = 0$$

$$(5y - 32)(y - 5) = 0$$

$$y = \frac{32}{5}, 5$$

$$y \geq x$$

S2. Ans.(b)

Sol.

$$\text{I. } x^2 - 80x + 1591 = 0$$

$$x^2 - 37x - 43x + 1591 = 0$$

$$x(x - 37) - 43(x - 37) = 0$$

$$(x - 43)(x - 37) = 0$$

$$x = 43, 37$$

$$\text{II. } y^2 - 68y + 1147 = 0$$

$$y^2 - 31y - 37y + 1147 = 0$$

$$y(y - 31) - 37(y - 31) = 0$$

$$(y - 37)(y - 31) = 0$$

$$y = 37, 31$$

$$x \geq y$$

S3. Ans.(e)

Sol.

$$\text{I. } 2x^2 + 3x - 324 = 0$$

$$2x^2 + 27x - 24x - 324 = 0$$

$$x(2x + 27) - 12(2x + 27) = 0$$

$$(x - 12)(2x + 27) = 0$$

$$x = 12, \frac{-27}{2}$$

$$\text{II. } 3y^2 - 20y + 32 = 0$$

$$3y^2 - 12y - 8y + 32 = 0$$

$$3y(y - 4) - 8(y - 4) = 0$$

$$(3y - 8)(y - 4) = 0$$

$$y = \frac{8}{3}, 4$$

No relation can be established

S4. Ans.(c)

Sol.

$$4x - 31\sqrt{x} + 60 = 0$$

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$$4x - 16\sqrt{x} - 15\sqrt{x} + 60 = 0$$

$$4\sqrt{x}(\sqrt{x} - 4) - 15(\sqrt{x} - 4) = 0$$

$$(4\sqrt{x} - 15)(\sqrt{x} - 4) = 0$$

$$\sqrt{x} = \frac{15}{4}, 4$$

$$\text{II. } 5y - 46\sqrt{y} + 105 = 0$$

$$5y - 25\sqrt{y} - 21\sqrt{y} + 105 = 0$$

$$5\sqrt{y}(\sqrt{y} - 5) - 21(\sqrt{y} - 5) = 0$$

$$(5\sqrt{y} - 21)(\sqrt{y} - 5) = 0$$

$$\sqrt{y} = 5, \frac{21}{5}$$

$$y > x$$

S5. Ans.(a)

Sol.

$$\text{I. } 6x^2 + 23\sqrt{3}x + 60 = 0$$

$$6x^2 + 15\sqrt{3}x + 8\sqrt{3}x + 60 = 0$$

$$3x(2x + 5\sqrt{3}) + 4\sqrt{3}(2x + 5\sqrt{3}) = 0$$

$$(3x + 4\sqrt{3})(2x + 5\sqrt{3}) = 0$$

$$x = \frac{-4\sqrt{3}}{3}, \frac{-5\sqrt{3}}{2}$$

$$\text{II. } 4y^2 + 33\sqrt{2}y + 135 = 0$$

$$4y^2 + 18\sqrt{2}y + 15\sqrt{2}y + 135 = 0$$

$$2\sqrt{2}y(\sqrt{2}y + 9) + 15(\sqrt{2}y + 9) = 0$$

$$(2\sqrt{2}y + 15)(\sqrt{2}y + 9) = 0$$

$$y = \frac{-15}{2\sqrt{2}}, \frac{-9}{\sqrt{2}}$$

$$x > y$$

S6. Ans. (c)

Sol. According to first condition, Ratio of honey and water =  $\frac{60-m}{n} = \frac{10}{1}$

$$\Rightarrow m + 10n = 60 \quad \dots(1)$$

According to second condition, Ratio of honey and water =  $\frac{60-2m}{n} = \frac{8}{1}$

$$\Rightarrow m + 4n = 30 \quad \dots(2)$$

Solving eq. (1) and (2),

$$m = 10, n = 5$$

$$\therefore m + n = 15$$

S7. Ans.(c)

Sol. Amount received

$$= 3,25,000 \times \frac{85}{100} \times \frac{90}{100}$$

= Rs. 2,48,625

∴ Required difference = 76,375

S8. Ans.(a)

Sol. Let money borrowed by Nitin was Rs. P

$$\therefore P \times 6 \times 3 + P \times 9 \times 5 + P \times 13 \times 3 = 8160 \times 100$$

$$\Rightarrow P = \text{Rs. } 8000$$

S9. Ans.(a)

Sol. Total letters = 5

Vowels = 2 (U, E)

$$\therefore \text{Total ways} = 4! \times 2!$$

$$= 48$$

S10. Ans.(c)

Sol. 2W, 3B and 4R

Total possible cases = (BWR, BWB, BRR, BBW, BBR, BBB)

so required no. of ways

$$= {}^3C_1 \times {}^2C_1 \times {}^4C_1 + {}^3C_1 \times {}^2C_2 + {}^3C_1 \times {}^4C_2 + {}^3C_2 \times {}^2C_1 + {}^3C_2 \times {}^4C_1 + {}^3C_3$$

$$= 24 + 3 + 18 + 6 + 12 + 1$$

$$= 64$$

S11. Ans.(b)

Sol.

Total non-defective mouse produced by HP in 2008 and 2011 together

$$= \frac{90}{100} \times 40,000 + \frac{92}{100} \times 54,000$$

$$= 85,680$$

Total mouse produce by Lenovo in 2010

$$= \frac{(100-21.875)}{100} \times 64,000$$

$$= 50,000$$

∴ Total non-defective mouse produced by Lenovo in 2010 and 2012 together

$$= \frac{90}{100} \times 50,000 + \frac{90}{100} \times 64,000$$

$$= 45,000 + 57,600$$

$$= 1,02,600$$

$$\therefore \text{Required percentage} = \frac{1,02,600 - 85,680}{1,02,600} \times 100 \approx 16.5\%$$

S12. Ans.(c)

Sol.

Let mouse produced by Dell in 2008 and 2010 are 4x and 5x respectively.

$$\therefore 4x + 5x = 2,12,000 - (36,000 + 48,000 + 56,000)$$

$$\Rightarrow 9x = 72,000$$

$$\Rightarrow x = 8,000$$

$$\therefore \text{Required average} = \frac{1}{3} \times (15 \times 320 + 12 \times 400 + 12 \times 560)$$



$$= \frac{1}{3} \times 16,320$$

$$= 5,440$$

S13. Ans.(d)

Sol.

Let production of mouse by Lenovo in 2010 is  $x$  then in 2009 it will be  $(x - 6000)$

$$\Rightarrow 2x - 6000 = 5 \times 49600 - (42,000 + 48,000 + 64,000)$$

$$= 2,48,000 - 1,54,000 = 94,000$$

$$\Rightarrow x = 50,000 = \text{Production in 2010}$$

$\therefore$  Production in 2009 by Lenovo = 44000

$\therefore$  Required total loss

$$= \left( \frac{20}{100} \times 44,000 + \frac{10}{100} \times 50,000 + \frac{12}{100} \times 48,000 \right) \times 60$$

$$= (8,800 + 5,000 + 5,760) \times 60$$

$$= \text{Rs. } 11,73,600$$



S14. Ans.(a)

Sol.

Total non-defective mouse of all companies in 2012

$$= \frac{90}{100} \times 60000 + \frac{88}{100} \times 56,000 + \frac{90}{100} \times 64,000 + \frac{92}{100} \times 56000$$

$$= 54,000 + 49,280 + 57,600 + 51,520$$

$$= 2,12,400$$

Total non-defective mouse of all companies in 2011

$$= \frac{92}{100} \times 54000 + \frac{94}{100} \times 48000 + \frac{88}{100} \times 48000 + \frac{85}{100} \times 48000$$

$$= 49,680 + 45,120 + 42,240 + 40,800$$

$$= 1,77,840$$

$$\therefore \text{Required difference} = 2,12,400 - 1,77,840 = 34,560$$

S15. Ans.(c)

Sol.

Selling price of one Acer mouse

$$= \frac{4}{3} \times 90$$

$$= \text{Rs. } 120$$

$$\left( \because 33\frac{1}{3}\% = \frac{1}{3} \right)$$

Total cost of mouse produced by Acer in all the years =  $90 \times (32,000 + 36,000 + 40,000 + 48,000 + 56,000)$

$$= 90 \times 2,12,000$$

$$= \text{Rs. } 1,90,80,000$$

Total selling price =  $(86 \times 320 + 82 \times 360 + 84 \times 400 + 85 \times 480 + 92 \times 560) \times 120$

$$= 1,82,960 \times 120$$

$$= 2,19,55,200 \text{ rupees}$$

$$\therefore \text{Total profit} = 2,19,55,200 - 1,90,80,000 = \text{Rs. } 28,75,200$$

S16. Ans.(b)

Sol.

Series is

$$+15, +30, +45, +60, +75$$

$$\text{So, } 47 + 45 = 92$$

S17. Ans.(c)

Sol.

Series is

$$1 \times 0.5 + 0.5, 1 \times 1 + 1, 2 \times 1.5 + 1.5, 4.5 \times 2 + 2, 11 \times 2.5 + 2.5$$

$$\text{So, } 4.5 \times 2 + 2 \Rightarrow 11$$

S18. Ans.(d)

Sol.

Series is

$$\div 2, \times 1.5, \div 2, \times 1.5, \div 2, \times 1.5$$

$$\text{So, } 112.5 \div 2 = 56.25$$

S19. Ans.(b)

Sol.

Series is

$$+3^2, +5^2, +7^2, +9^2, +11^2$$

$$\text{So, } 344 + 121 = 465$$

S20. Ans.(a)

Sol.

Series is

$$+2^2, +3^3, +4^2, +5^3, +6^2$$

$$\text{So, } 54 + 5^3 = 179$$

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