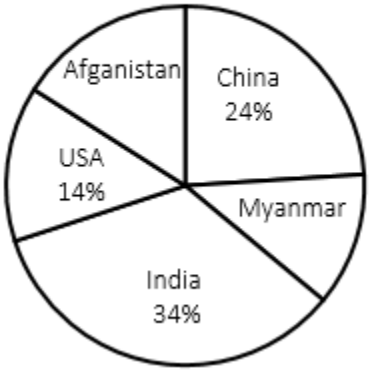
Quiz Date: 29th May 2020

Directions (1-5): The following pie-chart and table show the percentage distribution of weavers in 5 different countries who claimed suicide due to replacement of handlooms by big machines in year 1870 and ratio of male to female in them respectively. Study the graphs carefully and answer the following questions.
Note: In these charts, some data are missing. If required in any question, find them first and then proceed.

Total no of weavers who claimed Suicide in the year 1870 = 2,56,000



Countries	Ratio of male to Female in the weavers who claimed suicide in 1870
	Male : Female
China	5 : 3
Myanmar	5 : 1
India	– : –
USA	4 : –
Afganistan	3 : 1

Q1. No. of weavers who claimed suicide in China is 100% more than that in Myanmar. Find the total no. of male weavers who claimed suicide in Myanmar?
(a) 26,500
(b) 25,600
(c) 24,600
(d) 25,500
(e) None of these

Q2. The difference between number of weavers who claimed suicide in India and Afghanistan + USA together is 10,240. Find the number of male weavers who claimed suicide in Afghanistan is what percent of total weavers who claimed suicide in China?
(a) 48%
(b) 55%
(c) 50%

(d) 52%
(e) 54%

Q3. Total male weavers who claimed suicide in India are 46,080 more than the female weavers in the same country. Find, the average number of weavers who claimed suicide in China, India and USA together is approximately what percent less than the number of male weavers who claimed suicide in India?
(a) 8%
(b) 11%
(c) 12%
(d) 6%
(e) 4%

Q4. What is the ratio of female weavers who claimed suicide in USA to the female weavers who claimed suicide in China if number of male weavers in USA who claimed suicide was 20,480?
(a) 3 : 2
(b) 2 : 3
(c) 3 : 4
(d) 4 : 3
(e) 5 : 7

Q5. In year 1871, if the percentage of suicide claimed in India is reduced by 15% than previous year then the total number of weavers who claimed suicide in India in 1871 is what percent more or less than the total weavers who claimed suicide in China in 1870 (rounded off to two decimal places)?
(a) 26.24%
(b) 17.82%
(c) 24.42%
(d) 20.42%
(e) 16.34%

Q6. Lakshman estimates that on inspection 12% of the articles he produces will be rejected. He accepts an order to supply 22,000 articles at Rs. 7.50 each. He estimates the profit on his outlay including the manufacturing of rejected articles to be 20%. Find the cost of manufacturing each article.

(a) Rs. 6
(b) Rs. 5.50
(c) Rs. 5
(d) Rs. 4.50
(e) Rs. 6.50

Q7. To pass an examination, 40% marks are essential. Astha obtains 10% marks less than the pass marks and Bindiya obtains $11\frac{1}{9}$% marks less than Astha. What percent less than the sum of Astha's and Bindiya's marks should Chanda obtain to just pass the exam?
(a) 40%
(b) 41 (3/17)%
(c) 28(3/17)%
(d) 43(3/17)%
(e) 44%

Q8. The J&K Express from Delhi to Srinagar was delayed by snowfall for 16 minutes and made up for the delay on a section of 80 km travelling with a speed 10 km per hour higher than its original speed. Find the original speed of the J & K Express (according to the schedule).
(a) 60 km/hr
(b) 66.66 km/hr
(c) 50 km/hr
(d) 40 km/hr
(e) 55 km/h

Q9. Two planes move along a circle of circumference 1.2 km with constant speeds. When they move in different directions, they meet after every 15 seconds and when they move in the same direction, one plane overtakes the other after every 60 seconds. Find the speed of the slower plane.
(a) 0.04 km/second
(b) 0.03 km/second
(c) 0.05 km/second
(d) 0.02 km/second
(e) None of these

Q10. Find the total arrangements of the letters of the word 'AHAMADABAD' such that vowels do not come together?
(a) 15, 120
(b) 14, 760
(c) 15, 520
(d) 15, 123
(e) 14, 450

Directions (11-15): Solve the given quadratic equations and mark the correct option based on your answer—

Q11. I. $(2x- 7)^2 = 25$
II. $(4y - 1)^2 = 9$
(a) x > y
(b) x ≤ y
(c) x < y
(d) x ≥ y
(e) No relation can be established between x and y.

Q12. I. $\frac{20}{x^2} = 3 + \frac{4}{x}$
II. $\frac{32}{y^2} + 1 = \frac{12}{y}$
(a) x > y
(b) No relation can be established between x and y.
(c) x ≤ y
(d) x < y
(e) x ≥ y

Q13. I. $x^2 + 8x + 15 = 0$
II. $2y^2 + 21y + 54 = 0$
(a) x > y
(b) x ≥ y
(c) No relation can be established between x and y.
(d) x ≤ y
(e) x < y

Q14. **I.** $x^2 - x - 12 = 0$
II. $y^2 + 5y + 6 = 0$
(a) if x > y
(b) if x ≥ y
(c) if x < y
(d) if x ≤ y
(e) if x = y or the relationship cannot be established.

I. $x^2 - 8x + 15 = 0$

Q15. **II.** $y^2 - 3y + 2 = 0$

(a) if x > y
(b) if x ≥ y
(c) if x < y
(d) if x ≤ y
(e) if x = y or the relationship cannot be established.

Solutions

S1. Ans.(b)
Sol.

Let total weavers who claimed suicide in Myanmar are x

$\therefore \quad x \times \frac{200}{100} = \frac{24}{100} \times 2{,}56{,}000$

$\Rightarrow x = 30{,}720$

∴ Required answer

$= \frac{5}{6} \times 30{,}720$

$= 25{,}600$

S2. Ans.(c)
Sol.

Let x% weavers claimed suicide in Afganistan

∴ 34 × 2560 − (x + 14) 2560 = 10,240

⇒ x = 16%

∴ Required percentage

$= \frac{\frac{3}{4} \times 16}{24} \times 100$

$= 50\%$

S3. Ans.(a)
Sol.

Total female weavers who claimed suicide in India

$= \frac{34 \times 2560 - 46,080}{2}$

$= 20,480$

∴ Male weavers in India who claimed suicide

$= 46,080 + 20,480$

$= 66,560$

& Average no. of weavers who claimed suicide in China, India and USA together

$= \frac{1}{3} \times (24 + 34 + 14) \times 2560$

$= 61,440$

∴ Required percentage

$= \frac{66560 - 61440}{66540} \times 100$

$\simeq 8\%$

S4. Ans.(b)

Sol.

Let ratio of male and female weavers in USA = 4 : x

$\therefore \frac{4}{4+x} \times \frac{14}{100} \times 2,56,000 = 20,480$

$\Rightarrow x = 3$

$\therefore$ Required ratio $= \frac{\frac{3}{7} \times 14}{\frac{3}{8} \times 24}$

$= \frac{2}{3}$

S5. Ans.(d)

Sol.

No. of weavers who claimed suicide in India in 1871

$= \frac{85}{100} \times \frac{34}{100} \times 2,56,000$

$= 73,984$

Required percentage

$= \frac{73,984 - 24 \times 2560}{24 \times 2560} \times 100$

$= 20.42\%$

S6. Ans.(b)

Sol.

S.P. of articles = $22,000 \times \frac{88}{100} \times 7.5$

= 1,45,200

$\therefore$ C. P. of each article = $\frac{145200}{22,000} \times \frac{100}{120}$

= Rs. 5.5

S7. Ans.(b)

Sol.

Let maximum mark = 100

$\therefore$ Passing marks = 40

Astha's marks = $40 \times 0.9 = 36$

Bindiya's marks = $36 \times \frac{8}{9}$

= 32

$\therefore$ Required answer = $\frac{68-40}{68} \times 100$

= $41\frac{3}{17}\%$

S8. Ans.(c)

Sol.

Let original speed = x km/h

$\therefore \frac{80}{x} - \frac{80}{x+10} = \frac{16}{60}$

$\Rightarrow x^2 + 10x - 3000 = 0$

$\Rightarrow (x + 60)(x - 50) = 0$

$\Rightarrow x = 50$ kmph

S9. Ans.(b)

Sol.

Speed of slower plane

$= \frac{1}{2} \times \left(\frac{1.2}{15} - \frac{1.2}{60}\right)$

= 0.03 km/sec

S10. Ans.(b)

Sol.

Total vowels = 5 (A)

Total letters = 10

Total arrangements = $\frac{10!}{5! \times 2!} - \frac{6!}{2!}$

= 15120 – 360= 14760

S11. Ans.(d)

Sol.

I. $(2x - 7)^2 = 25$
$\Rightarrow 2x - 7 = \pm 5$
$\Rightarrow x = 1, 6$
II. $(4y - 1)^2 = 9$
$\Rightarrow 4y - 1 = \pm 3$
$y = 1, -\frac{1}{2}$
$x \geq y$

S12. Ans.(d)
Sol.
I. $\frac{20}{x^2} = 3 + \frac{4}{x}$
$\Rightarrow 3x^2 + 4x - 20 = 0$
$\Rightarrow 3x^2 + 10x - 6x - 20 = 0$
$\Rightarrow x(3x + 10) - 2(3x + 10) = 0$
$\Rightarrow (x - 2)(3x + 10) = 0$
$\Rightarrow x = 2, \frac{-10}{3}$
II. $\frac{32}{y^2} + 1 = \frac{12}{y}$
$\Rightarrow y^2 - 12y + 32 = 0$
$\Rightarrow y^2 - 4y - 8y + 32 = 0$
$\Rightarrow y(y - 4) - 8(y - 4) = 0$
$\Rightarrow (y - 8)(y - 4) = 0$
$\Rightarrow y = 8, 4$
$y > x$

S13. Ans.(c)
Sol.
I. $x^2 + 8x + 15 = 0$
$x^2 + 5x + 3x + 15 = 0$
$x(x + 5) + 3(x + 5) = 0$
$(x + 3)(x + 5)$
$x = -3, -5$
II. $2y^2 + 21y + 54 = 0$
$2y^2 + 12y + 9y + 54 = 0$
$2y(y + 6) + 9(y + 6) = 0$
$(2y + 9)(y + 6) = 0$
$y = -\frac{9}{2}, -6$
No relation can be established between x & y

S14. Ans.(e)
Sol.

(I) $x^2 - x - 12 = 0$
$\Rightarrow x^2 - 4x + 3x - 12 = 0$
$\Rightarrow x(x-4) + 3(x-4) = 0$
$\Rightarrow x = 4, -3$
(II) $y^2 + 5y + 6 = 0$
$\Rightarrow y^2 + 3y + 2y + 6 = 0$
$\Rightarrow y(y+3) + 2(y+3) = 0$
$\Rightarrow y = -2, -3$
So, no relation can be established between x & y

S15. Ans.(a)
Sol.
(I) $x^2 - 8x + 15 = 0$
$\Rightarrow x^2 - 5x - 3x + 15 = 0$
$\Rightarrow x(x-5) - 3(x-5) = 0$
$\Rightarrow x = 5, 3$
(II) $y^2 - 3y + 2 = 0$
$\Rightarrow y^2 - 2y - y + 2 = 0$
$\Rightarrow y(y-2) - 1(y-2) = 0$
$\Rightarrow y = 1, 2$
$\therefore x > y$