Quiz Date: 15th June 2020

Directions (1-5): Study the information given below carefully and answer the questions related to it.

In sector 40 of Cyber park, Gurugram, there are 2400 people who play three different type of sports Tennis, Volleyball and Badminton. 56% of total population play Badminton. 44% of total population play Volleyball. 240 people play both Badminton and Volleyball. 8% of total population play Tennis and Volleyball both. The total population who play Tennis is 24%. The people who play all the three types of games viz Tennis, Volleyball and Badminton are 4% of total population.

Q1. The population who play Tennis and Badminton both is approximately what percent of people who play Tennis?
(a) 40%
(b) 42%
(c) 48%
(d) 49%
(e) 45%

Q2. What is the average number of people who play Badminton only, Volleyball only and Tennis only?
(a) 648
(b) 662
(c) 640
(d) 650
(e) 658

Q3. What is the total number of people who play only Tennis and Volleyball both and only Tennis and Badminton both?
(a) 240
(b) 246
(c) 236
(d) 256
(e) 242

Q4. If the ratio of male to female is 13 : 9 in that population who play Volleyball then the total number of males who play Volleyball are what percent of total population?
(a) 24%
(b) 26%
(c) 28%
(d) 30%
(e) 32%

Q5. What is the difference between people who play Badminton only and Volleyball only?
(a) 244

(b) 238
(c) 235
(d) 240
(e) 245

Q6. How many numbers of five digits from the digits 0, 2, 4, 5, 7, 3 can be made which are divisible by five? (without repetition of digits)
(a) 216
(b) 162
(c) 2520
(d) 720
(e) 540

Q7. A bag contains 4 Red marbles, 3 Blue marbles and 6 White marbles. 8 marbles are drawn at random. What is the probability that the drawn marbles have no Red marble?
(a) $\frac{1}{3}$
(b) $\frac{2}{5}$
(c) $\frac{142}{143}$
(d) $\frac{9}{1426}$
(e) $\frac{1}{143}$

Q8. A committee of five persons is formed from four boys and five girls. Find the probability that there are at least two girls in the committee?
(a) $\frac{119}{126}$
(b) $\frac{53}{126}$
(c) $\frac{121}{126}$
(d) $\frac{113}{126}$
(e) None of these

Q9. A can hit a target 4 times in 5 shots, B hits 3 times in 4 shots and C hits thrice in 3 shots. They fire together. Find the probability that at least two shots hit the target.
(a) 13/30

(b) 5/6
(c) 11/40
(d) 9/11
(e) None of these

Q10. Find the probability of forming a word from rearranging 'HUMAN' such that vowels never come at even places.
(a) $\frac{3}{10}$
(b) $\frac{1}{20}$
(c) $\frac{7}{10}$
(d) $\frac{19}{20}$
(e) none of these

Directions (11-15): Find the approximate value of (?) in given questions
Q11. $(23.02 \times 22.98) + 11.89 \times 7.98 = ?^2$
(a) 20
(b) 25
(c) 31
(d) 22
(e) 30

Q12. 87.08 + 913.99 – 260.13% of 129.88 = 74.98% of ?
(a) 663
(b) 552
(c) 672
(d) 221
(e) 884

Q13. ?% of 1049.87 + 74.99% of 420.12 = 750.11% of 70
(a) 15
(b) 20
(c) 10
(d) 35
(e) 25

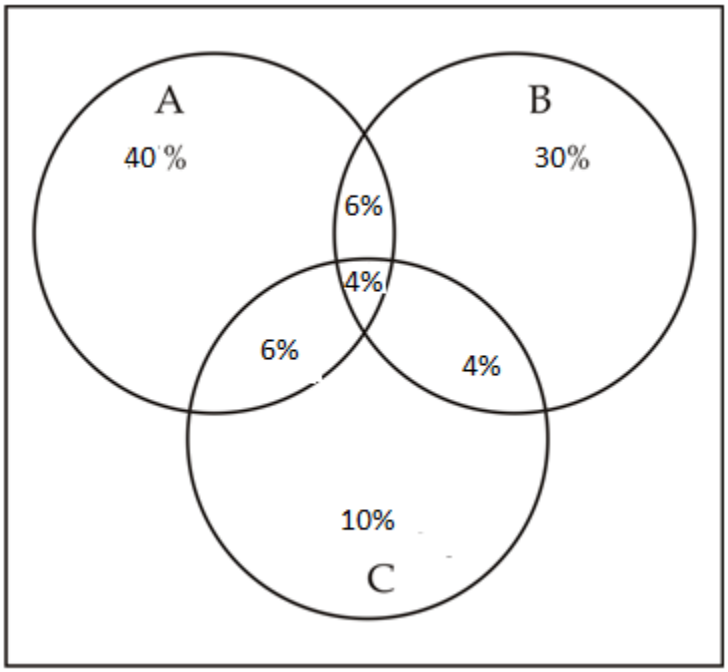
Q14. $\sqrt{324.11 \times \sqrt{19.98 \times 49.99 \times 8.01 \times 20.01}} + 25.17\%$ of 31.9 =?
(a) 368
(b) 455
(c) 312
(d) 244
(e) 632

Q15. $359.99 \times 288.02 \div 14.98 \div 17.94 = \frac{(?)^2}{6}$

(a) 51
(b) 38
(c) 41
(d) 45
(e) 48

Solutions

S (1-5)



Total population = 2400
n(A) = People who play Badminton
n(B) = people who play Volleyball
n(C) = People who play Tennis
n(A∩B) = People who play Badminton and Volleyball both
n(B∩C) = People who play Volleyball and Tennis both
n(A∩C) = People who play Badminton and Tennis both
n(A∩B∩C) =People who play all the three types of games

$240 \rightarrow$ converting into percentage $= \frac{240}{2400} \times 100$
$= 10\%$
$\therefore 100 = 56 + 44 + 24 - (10 + 8 + x) + 4$
$\Rightarrow x = 128 - 118$
$= 10\% = n(A \cap C)$

S1. Ans.(b)
Sol.
Required percentage $= \frac{10}{24} \times 100 \simeq 42\%$

S2. Ans.(c)
Sol.
Required average (From vain diagram)
$= \frac{1}{3} \times \frac{(40 + 30 + 10)}{100} \times 2400$
$= 640$

S3. Ans.(a)
Sol.
Required answer $= (6 + 4) \times 24$
$= 240$

S4. Ans.(b)
Sol.
Required no. of males in that population who play Volleyball
$= \frac{13}{22} \times 44 \times 24$
$= 624$
$\therefore$ Required percentage $= \frac{624}{2400} \times 100$
$= 26\%$

S5. Ans.(d)
Sol.
Required difference
$= \frac{(40 - 30)}{100} \times 2400$
$= 240$

S6. Ans.(a)
Sol. A number will be divisible by 5 if it has either 5 or 0 at its end.
$\therefore$ Total numbers formed which are divisible by 5 $= (5 \times 4 \times 3 \times 2) + (4 \times 4 \times 3 \times 2)$
$= 216$

S7. Ans.(e)
Sol.

Reqd. Probability $= \frac{^9C_8}{^{13}C_8}$

$= \frac{9 \times 5 \times 4 \times 3 \times 2}{13 \times 12 \times 11 \times 10 \times 9} = \frac{1}{143}$

S8. Ans.(c)

Sol. Total Possible ways = $9_{C_5} = \frac{9\times8\times7\times6\times5}{5\times4\times3\times2}$

= 126

No. of favorable cases = $5_{C_2} \times 4_{C_3} + 5_{C_3} \times 4_{C_2} + 5_{C_4} \times 4_{C_1} + 5_{C_5}$

$= 10 \times 4 + 10 \times 6 + 5 \times 4 + 1$

$= 40 + 60 + 20 + 1$

$= 121$

∴ Required probability = $\frac{121}{126}$

S9. Ans.(e)

Sol. Given

$P(A) = \frac{4}{5}, P(B) = \frac{3}{4}, P(C) = \frac{3}{3} = 1$

$\Rightarrow P(\overline{A}) = \frac{1}{5}, P(\overline{B}) = \frac{1}{4}$ amd $P(\overline{C}) = 0$

∴ Required probability $P(A)\ P(B)\ P(\overline{C}) + P(A)\ P(\overline{B})\ P(C) + P(\overline{A})\ P(B)\ P(C) + P(A)\ P(B)\ P(C)$

$= \frac{4}{5} \times \frac{3}{4} \times 0 + \frac{4}{5} \times \frac{1}{4} \times 1 + \frac{1}{5} \times \frac{3}{4} \times 1 + \frac{4}{5} \times \frac{3}{4} \times 1$

$= \frac{4}{20} + \frac{3}{20} + \frac{12}{20} = \frac{19}{20}$

S10. Ans.(a)

Sol.

Total possible words from HUMAN are = 5! = 120

Now, 2 vowels should come at odd positions, and there are 3 odd positions.

Therefore, possible ways are $3_{P_2} = 3! = 6$

And possible ways for 3 consonants, with 3 positions are 3! = 6

Hence, total possible ways such that vowels never come at even positions is 6 × 6 = 36

Probability $= \frac{36}{120} = \frac{3}{10}$

S11. Ans.(b)
Sol.
$23 \times 23 + 12 \times 8 \approx ?^2$
$? \approx 25$

S12. Ans.(e)
Sol.
$87 + 914 - 338 \approx \frac{75}{100} \times (?)$
$\frac{663 \times 100}{75} = ?$
$? = 884$

S13. Ans.(b)
Sol.
$?\,\%\text{ of } 1050 + \frac{75}{100} \times 420 = \frac{750 \times 70}{100}$
$?\%\text{ of } 1050 = 525 - 315$
$? = \frac{210}{1050} \times 100 \approx 20$

S14. Ans.(a)
Sol.
$\sqrt{324\sqrt{20 \times 50 \times 8 \times 20}} + \frac{25 \times 32}{100} \approx ?$
$\sqrt{324 \times 20 \times 20} + 8 \approx ?$
$360 + 8 \approx ?$
$? = 368$

S15. Ans.(e)
Sol.
$\frac{360 \times 288}{15 \times 18} = \frac{(?)^2}{6}$
$(?)^2 = 2304$
$(?) \approx 48$