Quiz Date: 20th July 2020

Directions (1-5): **Study the following information carefully to answer the questions.**
In a comparative study of population of six states. A, B, C, D, E and F the following were observed.
Female population of state A is 120% of the male population of state C and 90% of the female population of state D.

Male population of state B is 125% of the male population of state D and $1\frac{11}{14}$ times of the male population of state E. Male and female populations of state D are in the ratio of 13 : 12 respectively.
Male population of state A is 5/11th of the total population of the state which is 198000.
Female population of state C is 110% of the female population of state A and 75% of the male population of state F.

Male and female populations of state E are in the ratio of 7 : 8 respectively.
Female population of state B is 150% of the male population of state A.
Female population of state F is equal to the male population of state D.

Q1. Male population of state A is what percent more or less than female population of state B?
(a) $14\frac{2}{7}\%$
(b) $16\frac{2}{3}\%$
(c) $25\frac{2}{3}\%$
(d) $33\frac{1}{3}\%$
(e) $28\frac{2}{7}\%$

Q2. What is the ratio of male population of state C to the female population of state F?
(a) 7 : 12
(b) 8 : 15
(c) 9 : 13
(d) 11 : 16
(e) 10 : 13

Q3. What is the total population in state D?
(a) 1,80,000
(b) 2,50,000
(c) 2,10,000
(d) 2,60,000
(e) 2,00,000

Q4. What is the average of female population from state A, B and D together?

(a) 1,21,000
(b) 1,22,000
(c) 1,18,000
(d) 1,15,000
(e) 1,24,000

Q5. What is the total population of state F?
(a) 1,90,600
(b) 2,58,600
(c) 2,22,400
(d) 1,53,500
(e) 2,88,400

Directions (6-10): What approximate value will come in place of (x) in the following questions ?

Q6. 79.99% of 899.99 + $(16.02)^2$ × 3.99x = $(10.97)^3$-98.96
(a) 1
(b) 1.5
(c) 0.5
(d) 2
(e) 0

Q7. $\frac{3}{4} \times (15.99) + 31.99\%\ of\ 3199 + 294.9 = x^3$
(a) 10
(b) 11
(c) 12
(d) 15
(e) 8

Q8. $\sqrt[3]{511} + \sqrt{323} + \sqrt[3]{1130} = x$
(a) 32
(b) 34
(c) 37

(d) 28
(e) 30

Q9. 35% of $3500 - 12\%$ of $5000 = x^2$
(a) 22
(b) 23
(c) 25
(d) 28
(e) 30

Q10. $(0.449)^2 \times 12.49\%$ of $(3.99)^3 - 3\sqrt{x} = \sqrt{x}$
(a) ¼
(b) ½
(c) 2
(d) 4
(e) 5

Q11.The number of ways in which a committee of 5 can be chosen from 6 male and 5 female candidates such that there is at most three male candidates in the committee.
(a) 318
(b) 381
(c) 385
(d) 391
(e) 481

Q12. A number is selected at random from the first 35 natural numbers. What is the probability that it is either a multiple of 5 or a multiple of 7?
(a) 14/35
(b) 11/35
(c) 12/35
(d) 17/35
(e) 23/35

Q13. Three cards are drawn from a pack of cards at random. What is the probability that they consist of two different colours?
(a) 11/17
(b) 13/17
(c) 13/15
(d) 15/17
(e) 13/24

Q14. All possible four-digit numbers, with distinct digits are formed, using the digits {1, 3, 4, 5, 6}. How many of them are divisible by 5?
(a) 8

(b) 12
(c) 24
(d) 20
(e) 28

Q15. In a bag there are three pink and five white bolls. Three bolls are chosen randomly. What is the probability that at least one is pink and atmost two are white?
(a) 11/28
(b) 23/28
(c) 13/28
(d) 15/28
(e) None of these

Solutions

S(1-5)

State	Male	Female
A	90,000	1,08,000
B	1,62,500	1,35,000
C	90,000	1,18,800
D	1,30,000	1,20,000
E	91,000	1,04,000
F	1,58,400	1,30,000

S1. Ans.(d)
Sol.

$$\text{Required percentage} = \frac{1,35,000 - 90,000}{1,35,000} \times 100$$

$$= \frac{45,000}{1,35,000} \times 100 = 33\frac{1}{3}\%$$

S2. Ans.(c)
Sol.

$$\text{Required ratio} = \frac{90,000}{1,30,000} = 9 : 13$$

S3. Ans.(b)
Sol.
Total population of state = 1,30,000 + 1,20,000 = 2,50,000

S4. Ans.(a)
Sol.

$$\text{Average of female population of state A, B and D together} = \frac{108000 + 135000 + 120000}{3} = 121000$$

S5. Ans.(e)
Sol.
Total population of F = 1,58,400 + 1,30,000 = 2,88,400

S6. Ans.(c)
Sol.

$$\approx \frac{80}{100} \times 900 + (16 \times 16) \times 4x = (11)^3 - 99$$
$$\approx 720 + 1024x = 1331 - 99$$
$$\approx 1024x = 1331 - 99 - 720$$
$$\approx x = 0.5$$

S7. Ans.(b)
Sol.

$$\approx \frac{3}{4} \times 16 + \frac{32}{100} \times 3200 + 295 = x^3$$
$$\approx 12 + 1024 + 295 = x^3$$
$$\approx 1331$$
$$\approx x = 11$$

S8. Ans.(c)
Sol.

$\approx 8 + 18 + 11 = x$
$\approx x = 37$

S9. Ans.(c)
Sol.
$\approx \frac{35}{100} \times 3500 - \frac{12}{100} \times 5000 = x^2$
$\approx x = 25$

S10. Ans.(a)
Sol.
$\approx \frac{1}{4} \times \frac{1}{8} \times 4^3$
$\approx 2 = 4\sqrt{x}$
$\approx x = \frac{1}{4}$

S11. Ans.(b)
Sol.
Total ways
= (5 F, 0 M) or (4 F, 1 M) or (3 F, 2 M) or (2 F, 3 M)
$= {}^5C_5 + {}^5C_4 \times {}^6C_1 + {}^5C_3 \times {}^6C_2 + {}^5C_2 \times {}^6C_3$
= 381

S12. Ans.(b)
Sol. Number may be of 5, 10, 15, 20, 25, 30, 35 or 7, 14, 21, 28, 35
∴ Required probability $= \frac{7}{35} + \frac{5}{35}$
$= \frac{12}{35}$

S13. Ans.(b)
Sol.
Possible number of ways = Two black and one red or one black and two red.
$= {}^{26}C_2 \times {}^{26}C_1 + {}^{26}C_1 \times {}^{26}C_2$
$= 2 \times 13 \times 25 \times 26$
Total number of ways $= {}^{52}C_3$
$= \frac{52 \times 51 \times 50}{1 \times 2 \times 3}$
$= 20 \times 17 \times 50$
Probability of the event
$= \frac{2 \times 13 \times 25 \times 26}{26 \times 17 \times 50} = \frac{13}{17}$

S14. Ans.(c)

Sol.
Consider four blanks

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The units place is filled with 5. The remaining three blanks can be filled with 4 digits in ${}^4P_3$ ways.
∴ The number of four-digit numbers required is 24.

S15. Ans.(b)
Sol.
3P, 5W
Favorable cases
= (1P and 2W) or (2P and 1W) or (3P)
Required probability

$$= \frac{{}^3C_1 \times {}^5C_2}{{}^8C_3} + \frac{{}^3C_2 \times {}^5C_1}{{}^8C_3} + \frac{{}^3C_3}{{}^8C_3}$$

$$= \frac{3 \times 10 \times 6}{8 \times 7 \times 6} + \frac{3 \times 5 \times 6}{8 \times 7 \times 6} + \frac{6}{8 \times 7 \times 6}$$

$$= \frac{46}{56} = \frac{23}{28}$$