TCS latest pattern previous placement questions - 21

1. How many of the numbers x (x being integer) with 10<= x<= 99 are 18 more than the sum of their digits

a. 9

b. 12

c. 18

d. 10

Answer: d

Explanation:

Let the number be ab. So given that

⇒10a + b = 18 + a + b

⇒9a = 18

⇒a = 2

So 20, 21, ... upto 29 there are total 10 numbers possible.

2. Apples cost L rupees per kilogram for the first 30 kilograms and Q per kilogram for each additional kilogram. If the price paid for 33 kilograms of Apples is Rs.1167 and for 36 kilograms of apples if Rs.1284, then the cost of the first 10 kgs of apples is:

a. Rs.117

b. Rs.350

c. Rs.281

d. Rs.1053

Answer: b

Explanation:

Given that

30L + 3Q = 1167

30L + 6Q = 1284

Solving we get Q = 39, L = 35

So cost of first 10 kgs of apples = 35 × 10 = 350

3. A conical tent is to accommodate 10 persons. Each person must have 6 sq.meter space to sit and 30 cubic meter of air to breathe. What will be the height of the cone?

a. 150m

b. 37.5 m

c. 15 m

d. 75 m

Answer: c

Explanation:

Each person needs 6 sq meter of space. So

$\Rightarrow \pi r^2 = 6 \times 10 = 60$

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Total volume of the tent = 30 × 10 = 300

So $\frac{1}{3}\pi r^2 h = 300$

$\Rightarrow \frac{1}{3} \times 60 \times h = 300$

$\Rightarrow h = 15$ m

4. George and Mark can paint 720 boxes in 20 days, Mark and Harry in 24 days and Harry and George in 15 days. George works for 4 days, Mark for 8 days and Harry for 8 days. The total number of boxes painted by them is

a. 252

b. 516

c. 348

d. 492

Answer: c

Explanation:

Capacities of these people as followes

G + M = 720/20 = 36

M + H = 720/24 = 30

H + G = 720/15 = 48

Adding all above we get 2(G + M + H) = 114 $\Rightarrow$ G + M + H = 114/2 = 57

Now individual capacities are given below

G = 27 ; M = 9; H = 21

So 27 × 4 + 9 × 8 + 21 × 8 = 348

5. University of Vikramsila has enrolled nine PhD candidates. Babu, Chitra, Dheeraj , Eesha, Farooq,Gowri , Hameed, Iqbal, Jacob.

-Farooq and Iqbal were enrolled on the same day as each other, and no one else was enrolled that day.

-Chitra and gowri were enrolled on the same day as each other, and no one else was enrolled that day.

-On each of the other days of hiring , exactly one candidate was enrolled.

-Eesha was enrolled before Babu.

-Hameed was enrolled before Dheeraj

-Dheeraj was enrolled after Iqbal but before Eesha

-Gowri was enrolled after both Jacob and Babu

-Babu was enrolled before Jacob

Who were the last two candidates to be enrolled?

a. Babu and Gowri

b. Eesha and Jacob

c. Babu and Chitra

d. Gowri and Chitra

Answer: d

Explanation:

Given that

1. Easha < Babu

2. Hameed < Dheeraj

3. Iqbal < Dheeraj < Easha

4. Jacob/Babu < Gowri

5. Babu < Jacob

from 1 and 5, Easha was before Babu and Jacob so she cannot be in the last two. Option B ruled out

from 4 and 5, babu is before Jacob and Gowri so he cannot be in the last two. Options a, c ruled out.

So option d is correct.

6. A card from a pack of 52 cards is lost. From the remaining cards of the pack, two cards are drawn and are found to be both spade. Find the probability of the lost card being a spade.

a. 10/50

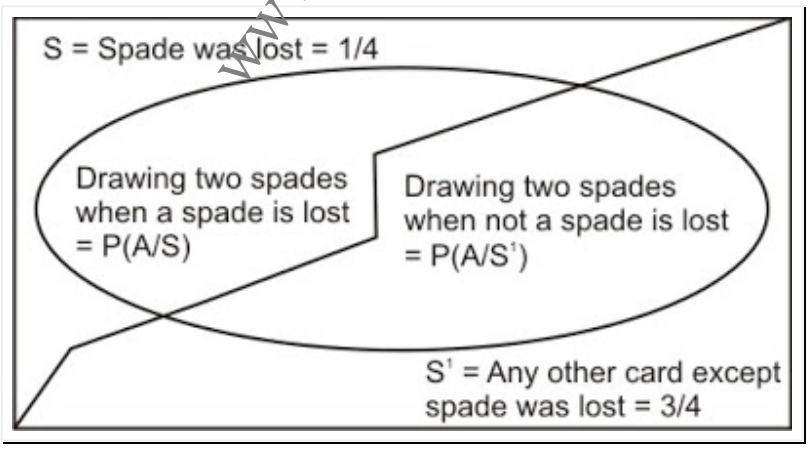
b. 10/53

c. 11/50

d. 11/53

Answer:

Explanation:



Let S and S^1 be the respective events of choosing a spade and a card which is not spade. Let A denote drawing two spades. Out of 52 cards, 13 are spade and 39 cards are not spade.

$P(S) = 13/52 = 1/4$

$P(S^1) = 39/52 = 3/4$

We first calculate the total probability of drawing two spades when the missing card is a spade and the missing card is not a spade.

Total probability = $P(A) = P(S \cap A) + P(S^1 \cap A) = P(S).P(\frac{A}{S}) + P(S^1).P(\frac{A}{S^1})$

When one spade is lost, there are 12 spades out of 51 cards. Two cards can be drawn out of 12 spade cards in ${}^{12}C_2$ ways. Similarly, 2 cards can be drawn out of 51 cards in ${}^{51}C_2$ ways.

Probability of drawing 2 spades when one spade is lost = $\frac{{}^{12}C_2}{{}^{51}C_2} = \frac{22}{425}$

$P(S \cap A) = P(S).P(\frac{A}{S}) = \frac{1}{4} \times \frac{22}{425}$

When the lost card is not spade, there are 13 spades out of 51 cards. Two cards can be drawn out of 13 spades in ${}^{13}C_2$ ways whereas 2 cards can be drawn out of 51 cards in ${}^{51}C_2$ ways.

The probability of getting two cards, when one card is lost which is not spade, is given by $P(\frac{A}{S^1})$

$P(\frac{A}{S^1}) = \frac{{}^{13}C_2}{{}^{51}C_2} = \frac{26}{425}$

$P(S^1 \cap A) = P(S^1).P(\frac{A}{S^1}) = \frac{3}{4} \times \frac{26}{425}$

The probability that the lost card is spade given that two spades are drawn = $P(\frac{S}{A}) = \frac{P(S \cap A)}{P(A)} =$

$\frac{P(S).P(A/S)}{P(S).P(A/S) + P(S^1).P(A/S^1)} = \frac{1/4 \times 22/425}{1/4 \times 22/425 + 3/4 \times 26/425} = 11/50$

7. There are two bags containing white and black balls. In the first bag there are 8 white and 6 black balls and in the second bag, there are 4 white and 7 black balls. One ball is drawn at random from any of these two bags. Find the probability of this ball being black.

a. 21/154

b. 7/54

c. 21/77

d. 41/77

Answer:

Explanation:

Probability = $\frac{1}{2} \times \frac{{}^{6}C_1}{{}^{14}C_1} + \frac{1}{2} \times \frac{{}^{7}C_1}{{}^{11}C_1} = \frac{41}{77}$

8. A bag contains 1100 tickets numbered 1, 2, 3, ... 1100. If a ticket is drawn out of it at random, what is the probability that the ticket drawn has the digit 2 appearing on it?

a. 291/1100

b. 292/1100

c. 290/1100

d. 301/1100

Answer: c

Explanation:

Numbers which dont have 2 from 1 to 9 = 8

Numbers which dont have 2 from 10 to 99:

Let us take two places _ _. Now left most place is fixed in 8 ways. Units place is filled with 9 ways. Total 72 numbres.

Numbers which dont have 2 from 100 to 999 =_ _ _ = 8 × 9 × 9 = 648

Numbers which dont have 2 from 1000 to 1099 =10_ _ = 9 × 9 = 81

Finally 1100 does not have 2. So 1.

Total number with no 2 in them = 8 + 72 + 648 + 81 + 1= 810

Tickets with 2 in them = 1100 - 810 = 290

Required probability = 290 / 1100

9. In how many ways a team of 11 must be selected a team 5 men and 11 women such that the team must comprise of not more than 3 men.

a) 1565

b) 2256

c) 2456

d) 1243

Answer: b

Explanation:

Maximum 3 men can be played which means there can be 0, 1, 2, 3 men in the team.

$({}^5C_0 \times {}^{11}C_{11}) + ({}^5C_1 \times {}^{11}C_{10}) + ({}^5C_2 \times {}^{11}C_9) + ({}^5C_3 \times {}^{11}C_8)$ = 2256