



Venn Diagrams Questions for RRB NTPC Set-3 PDF

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Instructions

For the following questions answer them individually

Question 1

100 people speak English. 80 people speak French and 60 people speak German. It is known that there are 200 people in total and each of them speaks at least one language. Exactly 50% of the total number of people speak exactly 2 languages. How many people speak all the three languages?

- A 1150
- B 60
- C 80
- D 140

Answer: B

Explanation:

Let's write the expression for the union of the three sets.

$$200 = 80 + 60 + 100 - (100) + x$$

$$x = 60$$

Hence, option B is the correct answer.

Question 2

There are 100 students in a class. Each student like at least one game among cricket, football and hockey. 70 of them like football, 50 like cricket and 40 like hockey. If 20 students like exactly two games then find the number of people who like all three games.

- A 10
- B 20
- C 15
- D 25

Answer: B

Explanation:

Let a represent the number of people who like only 1 game, b represent the people who like 2 games and c represent the people who like 3 games. We have been given that

$$a + b + c = 100$$

$$a + 2b + 3c = 70 + 50 + 40 = 160$$

We have been given that $b = 20$

Hence, we have

$$a + c = 80$$

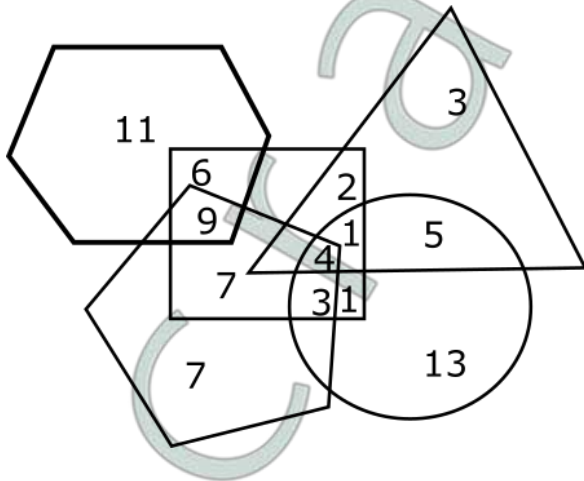
$$a + 3c = 120$$

$$\text{Hence, } 2c = 40 \Rightarrow c = 20$$

Hence, option B is correct.

Question 3

In the figure given below, find the number of people who are part of triangle, circle and square but not hexagon or pentagon?



- A 4
- B 3
- C 1
- D 5

Answer: C

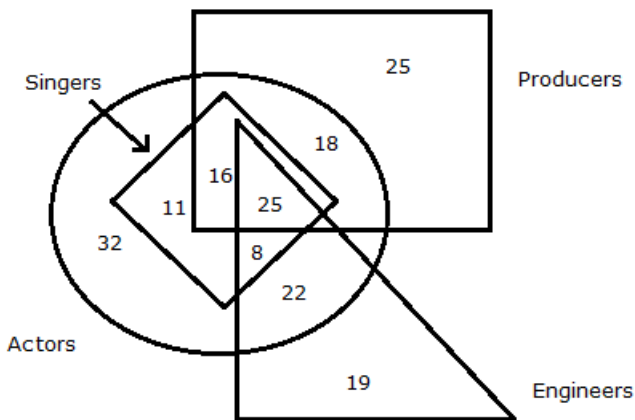
Explanation:

On observing the figure closely, we see that the number of people who are part of square, circle and triangle but not pentagon or hexagon are 1. Hence, option C is the correct answer.

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Question 4

In the following Venn diagram find the number of actors who are singers but not engineers?



- A 32
- B 25
- C 27

D 29

Answer: C

Explanation:

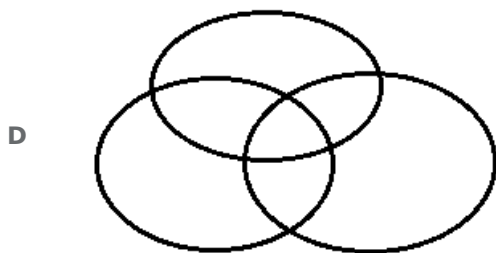
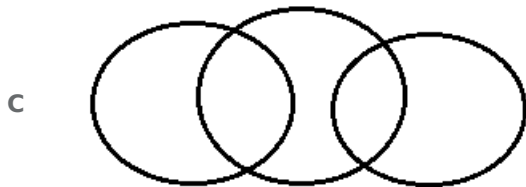
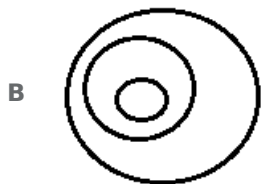
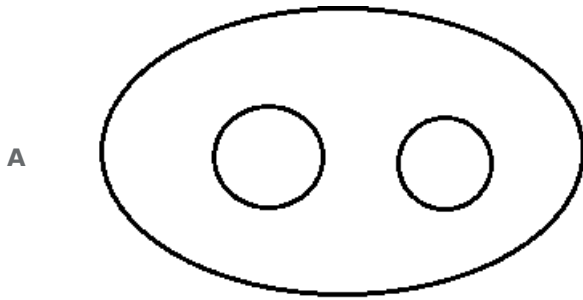
The part of the diagram which represents actors who are singers but not engineers is the intersection of circle and rhombus and subtracting the triangle part.

We have $11 + 16 = 27$

Hence, option C is the right choice.

Question 5

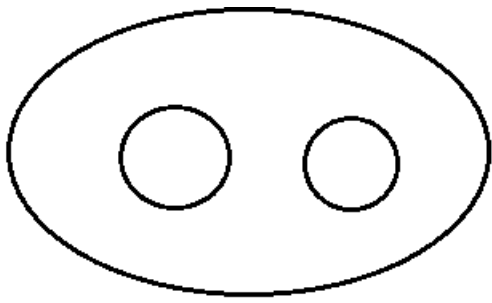
Four diagrams are given for each question. Choose the best diagram which describes Silver, Metals, Zinc



Answer: A

Explanation:

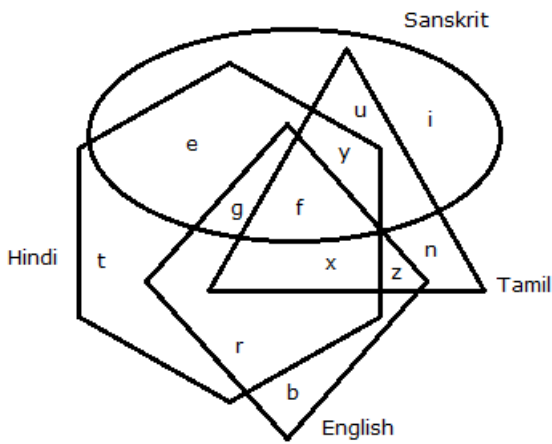
Silver and Zinc are independent, but both are Metals.



Hence, option A is the right choice.

Question 6

In the following Venn diagram find the sum of the number of students who can speak only Hindi and students who can speak English but not Tamil?



- A $t + g + r - f$
- B $b + t + g + e$
- C $t - x - z + r + b$
- D $t + b + r + g$

Answer: D

Explanation:

We have to find only hexagon + square - triangle

So sum of number of students who can speak only Hindi and students who can speak English but not Tamil = $t + b + r + g$

Hence, option D is the right choice.

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Question 7

In a group of 310 people, 200 people play cricket and 145 people play rugby. The maximum number of people who can play both the games is x. The minimum people who play both the games is y. Find $x - y$.

- A 110
- B 100
- C 120

D Cannot be determined

Answer: A

Explanation:

Let's first consider the minimum - y :

If all 310 people play at least one game, then

$$310 = 200 + 145 - y$$

$$y = 35$$

Let's consider the maximum - x

If some people do not play either of the two games, x 's value can increase till 145.

More than 145 is not possible as only 145 people play rugby.

Thus, $x = 145$

$$\text{Difference} = 145 - 35 = 110$$

Question 8

A tea company has developed 3 varieties of tea - A, B and C. It hired 50 professional tea tasters to test the quality of the teas. After tasting the tea, they were asked to vote whether they liked a particular tea or not. In total, 90 votes were registered favouring the teas. The number of persons who liked exactly one variety of tea was twice the number of persons who liked all the 3 varieties of the tea. The number of persons who voted in favour of exactly 2 varieties of the tea is

A 5

B 10

C 15

D 20

Answer: D

Explanation:

Let ' a ' be the number of persons liking exactly one variety of tea, ' b ' be the number of persons liking exactly 2 varieties of tea and ' c ' be the number of persons liking all the 3 varieties.

We know that,

$$a+b+c = 50$$

$$a+2b+3c = 90.$$

Also, it has been given that $a = 2c$

$$\Rightarrow b + 3c = 50$$

$$2b + 5c = 90$$

$$2b + 6c = 100$$

$$2b + 5c = 90$$

$$\Rightarrow c = 10$$

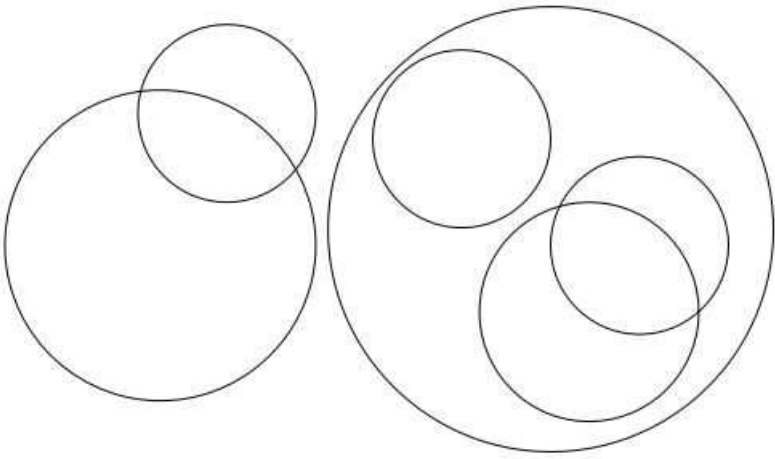
$$b = 20 \text{ and } a = 20.$$

Therefore, option D is the right answer.

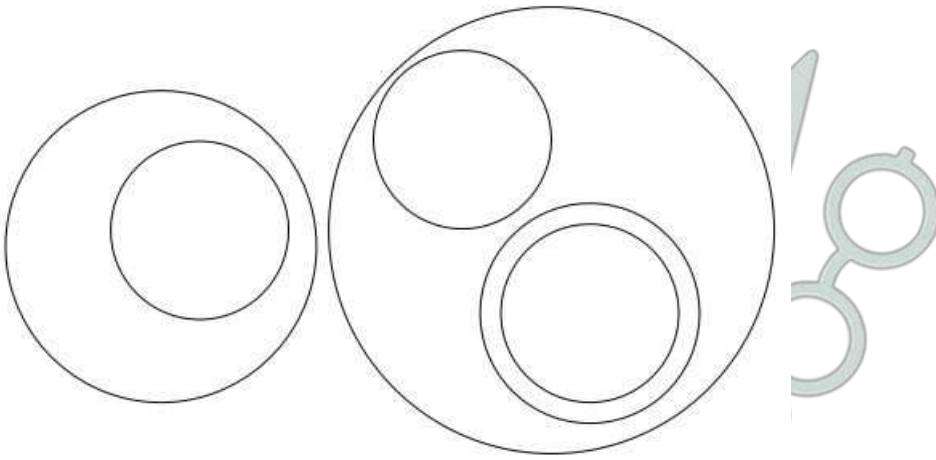
Question 9

Which of the following diagrams captures the relationship between vehicles, houses, cars, sedans, villas and trains?

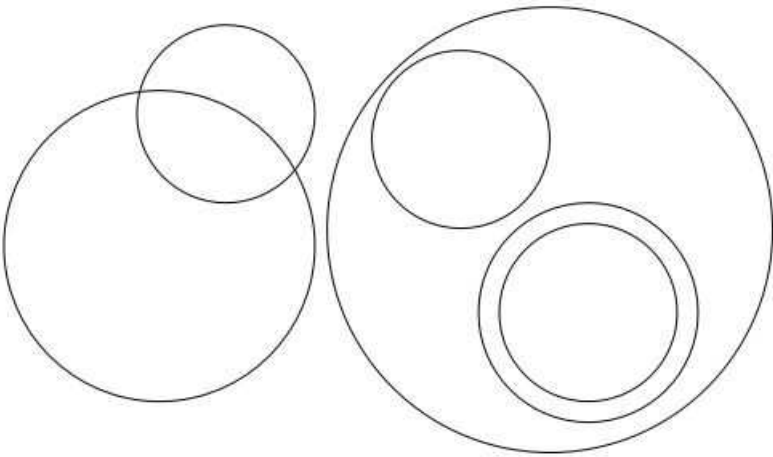
A



B

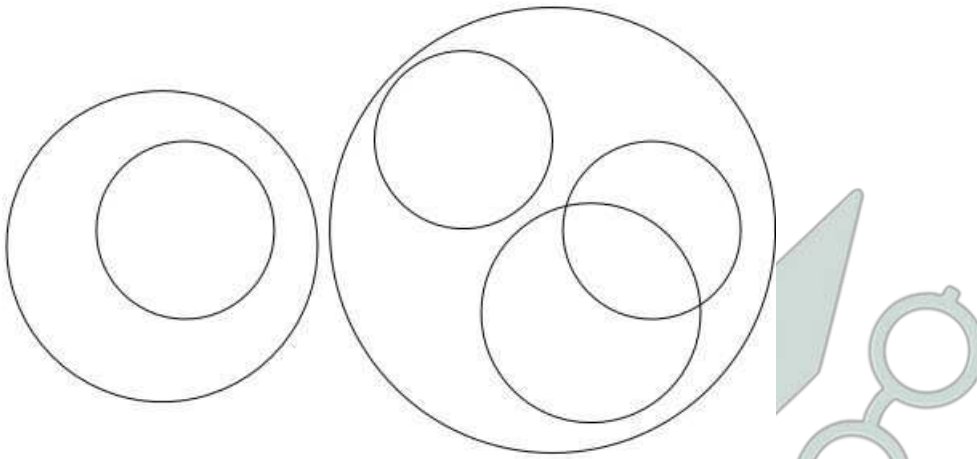


C



er

D



Answer: B

Explanation:

Cars are a subset of vehicles. Sedans are a subset of cars. Trains are also a subset of vehicles. Trains and cars must be disjoint. Villas are a subset of houses. Houses and vehicles must be disjoint. Only option B satisfies all the conditions. Therefore, option B is the right answer.

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Question 10

Sumit and Ravi are standing in a queue. Sumit is 17th from the beginning and Ravi is 13th from the end. 12 people are standing between Sumit and Ravi. What is the total number of people in the queue?

- A 42
- B 17
- C 43
- D Either 42 or 17

Answer: A

Explanation:

We know that there are 12 people between Sumit and Ravi. Hence, Ravi can be either at the 30th position from the beginning or he can be at the fourth position from the beginning. If Ravi is at 30th position then the total number of people in the queue will be $30 + 13 - 1 = 42$

If Ravi is fourth from the beginning, then the total number of people in the queue will be $13 + 4 - 1 = 16$. This is not possible since there must be at least 17 people in the queue. Thus, the correct answer is 42.

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