Practice Questions for

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| Question | In a class of 120 students numbered 1 to 120, all even numbered students opt for Physics, whose numbers are divisible by 5 opt for Chemistry and those whose numbers are divisible by 7 opt for Math. How many opt for none of the three subjects? |
| Option A | 19 |
| Option B | 41 |
| Option C | 21 |
| Option D | 26 |
| Answer | Option B |
| Explanation | We need to find out the number of students who took at least one of the three subjects and subtract that number from the overall 120 to get the number of students who did not opt for any of the three subjects.  Number of students who took at least one of the three subjects can be found by finding out A U B U C, where A is the set of those who took Physics, B the set of those who took Chemistry and C the set of those who opted for Math.  Now, AUBUC = A + B + C - (A n B + B n C + C n A) + (A n B n C) A is the set of those who opted for Physics = 120/2 = 60 students B is the set of those who opted for Chemistry = 120/5 = 24 C is the set of those who opted for Math = 120/7 = 17.  The 10th, 20th, 30th..... numbered students would have opted for both Physics and Chemistry.  Therefore, A n B = 120/10 = 12  The 14th, 28th, 42nd..... Numbered students would have opted for Physics and Math. Therefore, C n A = 120/14 = 8  The 35th, 70th.... numbered students would have opted for Chemistry and Math.  Therefore, B n C = 120/35 = 3  And the 70th numbered student would have opted for all three subjects.  Therefore, AUBUC = 60 + 24 + 17 - (12 + 8 + 3) + 1 = 79.  Number of students who opted for none of the three subjects = 120 - 79 = 41. |

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| Question | Of the 200 candidates who were interviewed for a position at a call center, 100 had a two-wheeler, 70 had a credit card and 140 had a mobile phone. 40 of them had both, a two-wheeler and a credit card, 30 had both, a credit card and a mobile phone and 60 had both, a two wheeler and mobile phone and 10 had all three. How many candidates had none of the three? |
| Option A | 20 |
| Option B | 10 |
| Option C | 18 |
| Option D | 25 |
| Answer | Option B |
| Explanation | Number of candidates who had none of the three = Total number of candidates - number of candidates who had at least one of three devices.  Total number of candidates = 200.  Number of candidates who had at least one of the three = A U B U C, where A is the set of those who have a two wheeler, B the set of those who have a credit card and C the set of those who have a mobile phone.  We know that AUBUC = A + B + C - {A n B + B n C + C n A} + A n B n C Therefore, AUBUC = 100 + 70 + 140 - {40 + 30 + 60} + 10 Or AUBUC = 190.  As 190 candidates who attended the interview had at least one of the three gadgets, 200 - 190 = 10 candidates had none of three. |

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| Question | In a class of 40 students, 12 enrolled for both English and German. 22 enrolled for German. If the students of the class enrolled for at least one of the two subjects, then how many students enrolled for only English and not German? |
| Option A | 30 |
| Option B | 10 |
| Option C | 18 |
| Option D | 28 |
| Answer | Option C |
| Explanation | Let A be the set of students who have enrolled for English and B be the set of students who have enrolled for German.  Then, (A U B) is the set of students who have enrolled at least one of the two subjects. As the students of the class have enrolled for at least one of the two subjects, A U B = 40  We know A U B = A + B - (A n B) i.e, 40 = A + 22 - 12 or A = 30 which is the set of students who have enrolled for English and includes those who have enrolled for both the subjects.  However, we need to find out the number of students who have enrolled for only English = Students enrolled for English - Students enrolled for both German and English = 30 - 12 = 18. |

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| Question | In a class 40% of the students enrolled for Math and 70% enrolled for Economics. If 15% of the students enrolled for both Math and Economics, what % of the students of the class did not enroll for either of the two subjects? |
| Option A | 5% |
| Option B | 15% |
| Option C | 20% |
| Option D | 25% |
| Answer | Option A |
| Explanation | We know that (A U B) = A + B - (A n B), where (A U B) represents the set of people who have enrolled for at least one of the two subjects Math or Economics and (A n B) represents the set of people who have enrolled for both the subjects Math and Economics.  **Note** (A U B) = A + B - (A n B) => (A U B) = 40 + 70 - 15 = 95%  That is 95% of the students have enrolled for at least one of the two subjects Math or Economics.  Therefore, the balance (100 - 95)% = 5% of the students have not enrolled for either of the two subjects. |

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| Question | A  B  Find A B |
| Option A | 2/3 |
| Option B | -2/3 |
| Option C | 3/2 |
| Option D | 3 |
| Answer | Option B |
| Explanation | Or  Or 3x(x-3) + 2(x-3) = 0  So x = - or x = 3 So A = {- , 3}  3x(2x – 3) + 2(2x – 3) = 0  So x = - or x = , So B {- , }  A B = {-} |

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| Question | Set A has 4 elements and set B has 7 elements. What can be the minimum number of elements in AUB? |
| Option A | 4 |
| Option B | 11 |
| Option C | 3 |
| Option D | 7 |
| Answer | Option D |
| Explanation | AUB will have minimum number of elements, if set A is subset of B.  n (A U B) = n (B) = 7 |

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| Question | Two finite sets have x and y number of elements. The total number of subsets of the first set is four times the total number of subsets of the second set. Find the value of x – y. |
| Option A | 2 |
| Option B | 4 |
| Option C | 3 |
| Option D | ½ |
| Answer | Option A |
| Explanation | Number of subsets of the 2 sets are and respectively.  Or = 4  x – y = 2 |

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| Question | In a group of 20 adults there are 8 females, 9 literate and 6 female literate. Find the number of male illiterates in group. |
| Option A | 6 |
| Option B | 9 |
| Option C | 3 |
| Option D | 12 |
| Answer | Option B |
| Explanation | Number of males = 20 – 8 = 12;  Number of male literate = 9 – 6 = 3  Number of male illiterate = 12 – 3 = 9 |

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| Question | In a school, there are 250 students. 140 study physics and 180 study biology. How many students study both the subjects? |
| Option A | 190 |
| Option B | 220 |
| Option C | 250 |
| Option D | Cannot be determined |
| Answer | Option D |
| Explanation | The answer of given question cannot be determined because we don’t know whether every student studies at least one of these subjects or not. |

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| Question | A firm has 40 workers working in the factory premises, 30 working in its office and 20 working in both the factory and the office. How many are working in factory alone? |
| Option A | 15 |
| Option B | 20 |
| Option C | 30 |
| Option D | 25 |
| Answer | Option B |
| Explanation | n(F) = 40 ; n(O) = 30 ; n (F O) = 20  The number of workers working in the factory only  = n(F) – n(F O) = 40 – 20 = 20 |

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| Question | A firm has 60 workers working in the factory premises, 40 working in its office and 30 working in both the factory and the office. How many are working in Office alone? |
| Option A | 10 |
| Option B | 30 |
| Option C | 20 |
| Option D | 25 |
| Answer | Option A |
| Explanation | n(F) = 60 ; n(O) = 40 ; n (F O) = 30  The number of workers working in office only  = n(O) – n( F O) = 40 – 30 = 10 |