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| **PT1/MA/1119A 26/05/2019** | | | | |
| **PERIODIC TEST I (2022-23)**  **ANSWER KEY** | | | | |
| **Subject: MATHEMATICS**  **Grade: XI** | | Max. Marks: 35Time: 1 Hr 10 Mins | | |
| **Name:** | | | **Section:** | **Roll No:** |
| ***General Instructions:***   * *This question paper consists of 2 printed pages.* * *Section A carries 2 mark each.* * *Section B carries 3 marks each.* * *Section C carries 4 marks each.* * *All answers to be written in the answer sheet provided.* | | | | |
|  | **SECTION A** | | | |
|  |  | | | |
|  | 50% of 70 is 35  40% of 70 is 28  so, 70-35=35  70-28=42  number of students passed in test 1 is 35  number of students passed in test 2 is 42  so, total number of students passed in both tests is 7 | | | |
|  | B – C = {e, o}, A ∩ (B – C) = e  A ∩ B = {e}, A ∩ C = {a},  (A ∩ B) – (A ∩ C) = e Hence proved. | | | |
|  | Given, | | | |
|  |  | | | |
|  | (1+i) y2 + (6 + i) = (2 + i) x  y2 + iy2 + 6 + i = 2x + xi  (y2 + 6) + (y2 + 1) i = 2x + xi  y2+ 6 = 2x  y2 + 1 = x  y2 = x – 1  x – 1 + 6 = 2x , x = 5, y = ± 2 | | | |
|  | **SECTION B** | | | |
|  | According to the given condition, | | | |
| 8. | n(A−B)=n(A)−n(A∩B) ⇒14+x=n(A)−x⇒ n(A)=14+2x  Also, n(B−A)=n(B)−n(A∩B)⇒3x=n(B)−x ⇒ n(B)=4x  Now, it is given that n(A)=n(B)⇒14+2x=4x⇒2x=14 ⇒ x=7 | | | |
| 9. |  | | | |
| 10. |  | | | |
| 11. | (1+b+ia)/(1+b-ia)  Multiply numerator and denominator with (1+b+ia)  = (1+b+ia)(1+b+ia)/(1+b-ia)(1+b+ia)  = (1+b+ia)2/((1+b)2+a2)  = (1+b2-a2+2iab+2b+2ia)/(1+b)2+a2)  = (2b2+2b+2ia(b+1))/(1+2b+b2+a2)  = (2b(b+1)+2ia(b+1))/ (2+2b) since a2+b2 = 1  = (2b(b+1)+2ia(b+1))/ 2(b+1)  = b+ia | | | |
| 12. | **CASE STUDY** | | | |
| 13. | 1. 3 2. 15 | | | |
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