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| **PT1/MA/1119A 26/05/2019** | | | | |
| **PERIODIC TEST I (2022-23)** | | | | |
| **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 ( 2 MARKS EACH)** | | | |
|  | Let and Then find the value of | | | |
|  | In a class, 70 students wrote two tests: test-I and test-II. 50% of the students failed in test-I and 40% of the students in test-II. How many students passed in both tests? | | | |
|  | If ∪ = {a, e, i. o. u} A = {a, e, i} And B = {e, o, u} C = {a, i, u} Then verify that  A ∩ (B – C) = (A ∩ B) – (A ∩ C) | | | |
|  | If , then find the value of . | | | |
|  | If |z1| = 1 = |z2| then prove that |z1 + z2| = |1/ z1 + 1/ z2| | | | |
|  | For what real value of x and y are complex numbers (1+i) y2 + (6+i) and (2+i) x equal? | | | |
|  | **SECTION B ( 3 MARKS EACH)** | | | |
|  | The finite sets and have and elements respectively. if the total number of subsets of is 112 more than the total number of subsets of , then find the value of and n. | | | |
| 8. | A and B are two sets such that n(A-B) = 14 + x , n(B – A) = 3x and n(AB) = x. If n(A) = n(B) then, find the value of x | | | |
| 9. | Solve: 3 x2 - 2 x + 3 = 0 | | | |
| 10. | If α and β are two different complex numbers with ∣β∣=1, then, find the value of | | | |
| 11. | If ∣ *a*+ *ib*∣=1, then find the value of (1 + b + ai)/( 1 + b - ai*)*​**.**  **SECTION C( 4 MARKS)** | | | |
| 12. | If a + ib = (c + i)/(c - i), where c is a real number, then prove that a2 + b2 = 1 and b/a = 2c/(c2 - 1).  **CASE STUDY(4 MARKS)** | | | |
| 13. | In a class of 35 students, 15 study Economics, 22 study Business Studies and 14 study Accountancy. 11 students study both Economics and Business studies, 8 study both Business studies and Accountancy and 5 study both Economics and Accountancy. If 5 students study none of these subjects, find the number of students who study   1. All the three subjects 2. Exactly 2 subjects | | | |
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