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| **PT1/MAQP/1123/A 22-MAY-2023** | | | | | | | | |
| **PERIODIC TEST - I (2023-24)** | | | | | | | | |
| **Subject: Mathematics**  **Grade: XI** | | | | | **Max. Marks:35**  **Time:1 Hr 15 Mins** | | | |
| **Name:** | | | | **Section:** | | | | **Roll No:** |
| **Section A(1 mark each )** | | | | | | | | |
|  | If A = {1,2,3}, B = {2,3,4} then A – B = | | | | | | | |
|  | **a.** | | {2,3} | | | **b.** | {1,2,3,4} | |
|  | **c.** | | {1} | | | **d.** | {4} | |
| **2.** | Domain of f(x)= is | | | | | | | |
|  | **a.** | | R | | | **b.** | R - {4} | |
|  | **c.** | | R+ | | | **d.** | R- | |
| **3.** | If tan | | | | | | | |
|  | **a.** | |  | | | **b.** |  | |
|  | **c.** | |  | | | **d.** | none of these | |
| **4.** | Assertion (A) cos(-x)=cos(x)  Reason: (R) cos(A-B)=cos(B-A) | | | | | | | |
|  | **a.** | | Both A and R are true and R is the correct explanation of A. | | | **b.** | Both A and R are true but R is not the correct explanation of A. | |
|  | **c.** | | A is true but R is false. | | | **d.** | A is false but R is true | |
| **Section B(2marks)** | | | | | | | | |
| 5 | | If A,B,C are three sets and S in the universal set such that n(S) = 900, n (A) = 400, n (B) = 250 and n(AB) = 150, then find n (A’B’) | | | | | | |
| 6 | | Find the domain and range of | | | | | | |
| 7 | | Prove  √3 cosec 20 º – sec 20 º = 4 | | | | | | |
| **Section C ( 3 marks )** | | | | | | | | |
| 8 | | A college awarded 38 medals in football, 15 in basketball and 20 in cricket. If these medals went to a total of 58 men and only three men got medals in all the three sports, how many received medals in exactly two of the three sports ? | | | | | | |
| 9 | | Draw the graph of Signum function and write the equation of signum function. Also find the domain and range. | | | | | | |
| 10 | | Show that tan 3 x tan 2 x tan x = tan 3x – tan 2 x – tan x | | | | | | |
| 11 | | Prove that | | | | | | |
| **Section D ( 4 Marks )** | | | | | | | | |
| 12 | | In a class of 175 students the following data shows the number of students opting one or more subjects. Mathematics 100; Physics 70; Chemistry 40; Mathematics and Physics 30: Mathematics and Chemistry 28; Physics and Chemistry 23; Mathematics, Physics and Chemistry 18.  i) How many students have offered Mathematics alone?  ii) How many students have offered Mathematics and physics but not chemistry  iii) How many students have offered chemistry alone  iv) How many students have offered all the three | | | | | | |
| 13 | | Find the domain and range of the following functions: | | | | | | |
| **SectionE( 5 marks )** | | | | | | | | |
| 14 | Prove. cos2A + cos2(A +120º) + cos2(A – 120º) = 3/2 | | | | | | | |

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