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| **PB-T2/MAQP/1221/B 7-APR-2022** |
| **PRE-BOARD EXAMINATION 3 - TERM-II (2021-22)** |

**Mathematics (041) –XII (2021-2022)**

**Marking scheme (TERM -2)**

**Set - II**

|  |  |  |
| --- | --- | --- |
| **Section– A** | | |
| **1.** | **OR**  I = .dx  let = t dx = dt  = = =  I = =  = = |  |
| **2.** | = |  |
| **3.** | tan-1y = tan-1 x +c |  |
| **4.** | l=m=n  l2 +m2 +n2 =1  l=m=n= , p= 3  x +y +z = |  |
| **5.** | 2/3. |  |
| **6.** | From the given data probability distribution of the random variable X is   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | X | 1 | 2 | 3 | 4 | 5 | 6 | | P(X) | k | 4k | 9k | 8k | 10k | 12k | |  |
| **Section– B** | | |
| **7.** |  |  |
| **8.** | Solution    OR  Given  Putting = v or y = vx = v + x  Putting the values of and in equation (i), we get    –      Integrating both sides we get,    Or = log + C |  |
| **9.** |  |  |
| **10.** | The plane is parallel to the line  Now, putting the value of in (*i*), we have  Which is the required equation of plane.  **OR**  Given equations are:  Equation of line (i)  Equation of plane 4x + 12y – 3z + 1 = 0. (ii)  Let  Any point on line (i) is N (say)  Given point is P (-2, 3, -4). Let line drawn from P parallel to plane (ii) meet the line (i) at N.  So direction ratios of line PN are  < 3  Or  Now PN is parallel to plane (ii) if a normal to the plane is perpendicular to PN.     * 12   Hence, coordinates of N are  or  Distance =  = = = units. |  |
| **Section– C** | | |
| **11.** | Equation of line ………(1)  D.R. of (1) < 5, 2, 3>  ( say)  General Point Q on AB:  and  Q  D.R. of PQ <  Since, AB is perpendicular to PQ  So, + = 0  ⇒  ⇒⇒  So, Q  Hence foot of perpendicular is  PQ = = units |  |
| **12.** | Point of intersection , x = 4  Area of the shaded region =  = 8 + 16  **OR**    Ordinate of intersection points are 1 & – 2 therefore  Required area  = area ABCD A – *area* ABEA |  |
| **13.** | I= I= =  2I=  Let :  = |  |
| **14.** | **CASE -BASED/ DATA- BASED** | |
|  |  |  |
|  | ii) = = 1/17 |  |