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| **B**  **HALF YEARLY EXAM (2020-21) ANSWER KEY**  **MATHEMATICS – ANSWER KEY** | |
| **HY/MAAK/1220B 12/11/2020** | |
| **Section I** | |
| 1 | P= -8 |
| 2 |  |
| 3 | Order is 4 and degree is not defined. **OR order =2, degree=1** |
| 4 |  |
| 5 | **|B|=-3** |
| 6 | = =  Now = [ let x=3+h ; x→3⁺ ═►h→0]  = =  =  = = 12⇒ 12= k ⇒ k=12. |
| 7 | Given differential equation is  IF == |
| 8 | **OR** |
| 9 |  |
| 10 | 6/7 OR |
| 11 | +C |
| 12 | I |
| 13 |  |
| 14 |  |
| 15 | π/3 |
| 16 |  |
| **Section II** | |
| 17  18. | (i) a (ii)d (iii) a (iv) b (v) c  (i)a (ii) d (iii) a (iv) b (v) c |
| 19 | Let      Adding (1) and (2) we get,        .  **OR**  **I =** …………..(1)  Using property, I =  = …………(2)  Adding (1) & (2)  2I = =0  I = 0 |
| 20 |  |
| 21 |  |
| 22 | α = 11    OR |
| 23 |  |
| 24 | …………………………………………..  Integrating both sides by appropriate substitution,  ………………………………………….. |
| 25 |  |
| 26 | Diagram  Required Area = sq units |
| 27 |  |
| 28 | Diagram  Reqd Area = square units |
|  |  |
|  |  |
|  |  |
| **Section IV** | |
| 29 |  |
| 30 |  |
| 32 | Squaring both sides, we get  Differentiating again with respect to *x*, we get |
| OR | =>  =>  =>  Again differentiating with respect to  =>  =>  Hence proved. |
| 33 |  |
| 34 | , which is of the form  Here, P = and Q =  I.F. =  The solution is given by    => is the required solution. |
| 35 |  |
| **Section V** | |
| 36 | Given two matrices and, and.  Then the product .    Now the system of equations is given by:  , ,  Which can be written in matrix form as :      Hence        **OR** |
| 37 |  |
| 38 | **OR** |

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