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| **G** | | |
| **HY/MAAK/1220A 11/11/2020** | | |
| **HALF YEARLY EXAMINATION (2020-21)** | | |
| **Subject: MATHEMATICS (ANSWER KEY)**  **Grade: XII** | | Max. Marks: 80Time: 3 Hrs |
|  | **SECTION A** | |
| 1 | Maximum = 6 & minimum=4 OR | |
| 2 |  | |
| 3 | -4 | |
| 4 |  | |
| 5 | 5 | |
| 6. | OR | |
| 7. |  | |
| 8. | -3 | |
| 9. | I.F=  **OR** | |
| 10. | x = | |
| 11. |  | |
| 12 |  | |
| 13. |  | |
| 14. | -2 | |
| 15. | Since | |
| 16. | 16 | |
|  | **SECTION- II** | |
| 17 | i) a) ii) d) iii) b)  iv) d) v) c) | |
| 18. | i) b) ii)  iii) iv) c) v) | |
|  | **PART B** | |
|  | **SECTION- III** | |
| 19 | By logarithmic differentiation  Therefore, | |
| 20. | Evaluate.  =  +C  =  OR  By ,    Adding (i)and (ii) | |
| 21. | I.F== | |
| 22. | If A= . Find the value of ‘k’ so that . Hence find  = -  k=1  By pre multiplication method,  OR  , | |
| 23. | =  = | |
|  |  | |
| 24. | Find whether the following function is differentiable at x=2 or not. f(x)=  LHD =-1  RHD =-1  It is differentiable at x=2 | |
| 25 | Required area= | |
| 26 | in | |
| 27 | =  General solution: =  When x=1, y=0, then  = | |
| 28 | Required area= | |
|  | SECTION C | |
| 29 | Again,      Again differentiating both sides with respect to *x,* we get  Hence, | |
| 30 | = =  (Integration by parts) | |
| 31 | Differentiating again with respect to x, we get    Hence proved.  **OR** | |
| 32 | Slope of tangent at  Slope of normal at  Point of contact  Equation of tangent:  Equation of normal: | |
| 33 | Put , then      C= | |
| 34 | ; | |
| 35 | So let A=  So, A= | |
|  | **SECTION D** | |
| 36 | Consider x2= t(only for P.F)  **OR**  ,  Also x=0, t= 0 and x= then t=  A= and B= | |
| 37 | A=  Solve the system of linear equations  . So exists.  =  The system of equation is    X= =  x=1; y=2 ; z=-1  **OR**  AB = = = 8I    A  Now system of equations reduces to BX = C    X= = | |
| 38. | **OR** | |

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