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| **SET 2 Answer key Preboard I (2023-24)** | | | |
| **Subject: MATHEMATICS**  **Grade: 12** | | Max. Marks:80Time: | |
|  | **Multiple Choice Questions:** | |  |
|  | 2 (c) | | |
| **2.** | Symmetric (c) | | |
| **3.** | A (a) | | |
| **4.** | 1 (b) | | |
| **5.** | Sin-1(x-1) +c (a) | | |
| 6. | - sin a (d) | | |
| 7. | (d) | | |
| 8. | -81 (c) | | |
| 9. |  | | |
| 10. |  | | |
| 11. | (d) | | |
| 12. | 4 (d) | | |
| 13. | 6 (d) | | |
| 14. | (c) | | |
| 15. | a-8b=0 (d) | | |
| 16. |  | | |
| 17. |  | | |
| 18. | r= 3i+4j-7k+ (b) | | |
| 19. | d | | |
| 20. | a | | |
| 21. | Sin2A= 3/5  3 tan2A-10tanA+3=0  Tan A=1/3 ( Since A lies in the first quadrant)  OR | | |
| 22. | m=5-6x2  Decreases @72 unit/sec | |  |
| 23. | (x) is increasing | |  |
| 24. | = -ve  Maximum value = 1/e  **OR**    Profit is maximum at x=48 | |  |
| 25. | f(-x) =-f(x)  Hence the | |  |
| 26. | =t dx=-2dt    -+c  -+c  OR  let | |  |
| 27. | I=  I=  2I==2 ( Property)  Cos x=t ; -sin x dx =dt ; x=0;t=1 & x= ; t=0  21= \  I = | |  |
| 28. | y= v x  v+  *Integrating both sides*  *log sin v=-log x+ log c*  *x sin v=c*  & x=1.  *c =1*  *OR*  *x=yv*  *v+y*    *When y=1 & x=0*  *logy+* | |  |
| 29. | IF is  x.( *=*  x.( *=*  When x=0 ; y=  x.( *=* | |  |
| 30. | ……………. (1)  ( by (1) ) | |  |
| 31. | |  |  | | --- | --- | | Corner points | Z=600x+400y | | (0,4) | 1600 | | (0.6) | 2400 | | (4,4) | 4000 maximum | | (6,0) | 3600 | | (5,0) | 3000 |   **OR**     |  |  |  | | --- | --- | --- | | **Corner point** | Z=x+2y |  | | A(0,50) | 100 | → Minimum | | B(20,40) | 100 | → Minimum | | C(50,100) | 250 |  | | D(0,200) | 400 |  |  The minimum value of Z is 100 at all the points on the line segment joining the points (0,50) and (20,40). | |  |
| 32. | **OR**  R is reflexive:  Hence R is reflexive.  R is Symmetric:  =2  Hence  Hence R is not symmetric.  R is Transitive  i.e,  But  Hence R is not transitive. | |  |
| 33. | ‘    X=  x=0 ; y=-5; z=-3  **OR**  AB=6I  AX=C  X=  x=2; y=-1; z=4 | |  |
| 34. |  | |  |
| 35. | Equation of the line is  Foot of the perpendicular from P(1,2,3) be (2 *+4,2 +2,6*  d.r’s of the vector PA be 2+3:2 *:6 -1*  *d.r’s of the line be 2:2:6*  *Since PA is perpendicular to the line PA. b=0*  *Hence 4 +6+4 +36 -6=0*  *44 =0 i.e, =0*  *Therefore, Foot of the perpendicular (4,2,2)*  *Distance PA=* | |  |
| 36. | 1. AX= 2. DX=   =  4 *-7 = -3 ………. ( 1 ) & ………… ( 2 )*  *&* | |  |
| 37. | 1. < 2. )   =  =0 Hence they may collide each other | |  |
| 38. | P= (= 2x +   1. At Max. or Min   +  Hence P is minimum when x= | |  |