# INDIAN SCHOOL DARSAIT
# DEPARTMENT OF MATHEMATICS

**Subject :MATHEMATICS Topic :MATRIX MULTIPLICATION Date :24-4-2017**

**Resource Person:PremelaIsac Date of submission :30-4-2017**

**Name of the Student: _____ Class &Division:Roll. Number:**

| Sl.No. | Questions | Marks |
|---|---|---|
| 1. | Find the value of x + y from the following equation $2\begin{bmatrix} x & 5 \\ 7 & y-3 \end{bmatrix} + \begin{bmatrix} 3 & -4 \\ 1 & 2 \end{bmatrix} = \begin{bmatrix} 7 & 6 \\ 15 & 14 \end{bmatrix}$ | 1 |
| 2. | Find the value of x,y,z and w such that $\begin{bmatrix} x-y & 2z+w \\ 2x-y & 2x+w \end{bmatrix} = \begin{bmatrix} 5 & 3 \\ 12 & 15 \end{bmatrix}$ | 4 |
| 3. | The sales figure of two car dealers during January 2007 showed that dealer A sold 5deluxe,3 premium and 4 standard cars,while dealer B sold 7deluxe,3premium and 2standard cars .Total sale over the two month period of January-February revealed that dealer A sold 8deluxe,7 premium and 6standard cars.in the same 2month period dealer B sold 10deluxe,5premium and 7standard cars.Write 2×3 matrices summarizing sales data for January and 2-monthperiod for each dealer. | 4 |
| 4. | In a certain city there are 30 colleges Each college has 15 peons,6 clerks,1 typist and 1 section officer. Express the given information as a column matrix .Using scalar multiplication,find the total number of posts for each kind in the colleges. | 4 |
| 5. | If A=$\begin{bmatrix} 2 & -1 \\ 3 & 2 \end{bmatrix}$ and B=$\begin{bmatrix} 0 & 4 \\ -1 & 7 \end{bmatrix}$, find $3A^2-2B+I$. | 4 |
| 6. | If A=$\begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix}$, $f(x)=x^2-2x-3$,show that f(A)=0. | 4 |
| 7. | There are two families A and B. There are 4 men, 6 women and 2 children in family A and 2 men, 2 women and 4 children in family B. The recommended daily allowance for calories is :Man : 2400, Women :1900, Child : 1800 and for proteins is : Man : 55gm : Women :45 gm and child : 33gm. Represent the above information by matrices. Using matrices multiplication, calculate the total requirement of calories and proteins for each of the two families. | 4 |
| 8. | Three shopkeepers A,B and C go to a store to buy stationary. A purchases 12 dozen notebooks, 5 dozen pens and 6 dozen pencils. B purchases 10 dozen notebooks, 6 dozen pens and 7 dozen pencils. C purchases 11 dozen notebooks, 13 dozen pens and 8 dozen pens. A notebook costs 40 paisa, a pen costs Rs. 1.25 and a pencil costs 35 paisa. Use matrix multiplication to calculate each individual's bill. | 4 |
| 9. | The cooperative stores of a particular school has 10 dozen physics books, 8 dozen chemistry books and 5 dozen mathematics books. Their selling price are Rs. 8.30, Rs. 3.45 and Rs 4.50 respectively. Find the total amount the store will receive from selling all the items. | 4 |

| | | |
|---|---|---|
| 10. | In a legislative assembly election, a political group hired a public relations firm to promote its candidates in three ways : telephone , house calls and letters. The cost per contact ( in paise) is given matrix A as<br><br>Cost per contact<br><br>$A=\begin{bmatrix} 40 \\ 100 \\ 50 \end{bmatrix}$<br><br>The number of contacts of each type made in two cities X and Yis given in matrix B as<br><br>Telephone house call letter<br><br>$B=\begin{bmatrix} 1000 & 500 & 5000 \\ 3000 & 1000 & 10000 \end{bmatrix}$<br>Find the total amount spent by the group in the two cities X and Y. | 6 |
| 11. | If $A=\begin{bmatrix} 1 & -1 \\ 2 & -1 \end{bmatrix}$ , $B=\begin{bmatrix} a & 1 \\ b & -1 \end{bmatrix}$ and $(A+B)^2=A^2+B^2$ , find a and b. | 4 |
| 12. | If $A=\begin{bmatrix} 0 & 0 \\ 2 & 0 \end{bmatrix}$ ,then find $A^{19}$. | 2 |
| 13. | Find the inverse using elementary operation A = = $\begin{bmatrix} 1 & 2 & -2 \\ -1 & 3 & 0 \\ 0 & -2 & 1 \end{bmatrix}$ | 4 |
| 14. | Express the following matrix as the sum of symmetric and skew symmetric matrices $\begin{bmatrix} 3 & -2 & -4 \\ 3 & -2 & -5 \\ -1 & 1 & 2 \end{bmatrix}$ | 4 |
| 15. | If $A=\begin{bmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{bmatrix}$, then find the value of $A^2-3A+2I$ | 4 |

Dear Children,
There is no substitute for hard work.
All the best. God Bless.