QUESTION BANK

BASIC MATHEMATICS (K- Scheme)

BMS (311302)

UNIT TEST - 1

Unit-I (ALGEBRA) **CO-I**

2- marks

1) Prove that $\frac{1}{\log_3 6} + \frac{1}{\log_8 6} + \frac{1}{\log_9 6} = 3.$
2) Find the value of 'x ' if $\log_3(x + 6) = 2.$
3) Evaluate : $\log_3 81.$
4) Find the value of $\log\frac{2}{3} + \log\frac{4}{5} - \log\frac{8}{15}.$
5) If A = $\begin{bmatrix} -2 & 0 \\ 3 & 4 \end{bmatrix}$ and B = $\begin{bmatrix} 2 & 1 \\ 3 & 5 \end{bmatrix}$, check whether the product matrix $[AB]$ is Singular or Non- Singular ?.
6) If A = $\begin{bmatrix} 2 & 4 \\ -1 & -2 \end{bmatrix}$, then prove that A^2 is a null matrix.
7) Find 3A – 2B if A = $\begin{bmatrix} 2 & 3 \\ -4 & 7 \end{bmatrix}$ and B = $\begin{bmatrix} -1 & 3 \\ 6 & 9 \end{bmatrix}$.
8) Find the Inverse of a matrix A = $\begin{bmatrix} -1 & 3 \\ 2 & -4 \end{bmatrix}$.
9) Resolve into Partial Fraction : $\frac{1}{x^2+4x}$.
10) Resolve into Partial Fraction : $\frac{1}{x^2-9}$.
11) Resolve into Partial Fraction : $\frac{(x+3)}{(x+5)(2x-1)}$.
12) Resolve into Partial Fraction : $\frac{x}{(x^2+x-2)}$

Unit –V (STATISTICS) **CO-5**

2- marks

13) Find the Range & Coefficient of range for the following data :

C.I	10-19	20-29	30-39	40-49	50-59	60-69	70-79
Frequency	3	61	223	137	53	19	04

14)Find the Standard Deviation for the following data :

15, 22, 27 ,11,9 ,21 ,14 ,9 .

15) If the Coefficient of Variance for a given data is 75 % and Standard deviation is 24 , then find Mean of the data.

16) Find the Range & Coefficient of Range for the following :

45 , 42, 39 , 40 , 48 , 41 , 45, 44

Unit-1 (ALGEBRA)

4- marks

1) If $\log\left(\frac{a-b}{5}\right) = \frac{1}{2}$ (log a – log b) , then prove that $a^2 + b^2 = 27$ ab .

2) Find the value of "x" if $\log_{10}(x^2 + 6x + 28) = 2$.

3) Prove that the matrix A = $\frac{1}{3}\begin{bmatrix} -1 & 2 & 2 \\ 2 & -1 & 2 \\ 2 & 2 & -1 \end{bmatrix}$ is an Orthogonal matrix .

4) Solve the following equations by Matrix- Inversion Method :

3x + y + 2z = 3 ; 2x – 3y-z = 3 ; x + 2y + z = 4 .

5) Find the value of x , y & z if

$$\left\{3\begin{bmatrix} 3 & 1 \\ 4 & 0 \\ 3 & -3 \end{bmatrix} - 2\begin{bmatrix} 0 & 2 \\ -2 & 3 \\ -5 & 4 \end{bmatrix}\right\}.\begin{bmatrix} -1 \\ 2 \end{bmatrix} = \begin{bmatrix} x \\ y \\ z \end{bmatrix}.$$

6) If A = $\begin{bmatrix} 2 & 4 & 4 \\ 4 & 2 & 4 \\ 4 & 4 & 2 \end{bmatrix}$, then prove that $A^2 - 8A$ is a Scalar matrix.

7) Resolve into PF : $\frac{3x+2}{(x+1),(x^2-1)}$.

8) Resolve into PF : $\frac{2x+3}{x^2-2x-3}$.

9) Resolve into PF : $\frac{x^2+1}{x.(x^2-1)}$.

10) Resolve into PF : $\frac{x^2+23x}{(x+3).(x^2+1)}$.

11) Prove that : $\frac{1}{\log_a abc} + \frac{1}{\log_b abc} + \frac{1}{\log_c abc} = 1$

Unit-V (STATISTICS)

4 -marks

12) Find the Standard Deviation for the following data :

C .I.	0-10	10-20	20-30	30-40	40-503
Frequency	3	5	8	3	1

13) The runs scored by two batsman in test series is as follows :

Batsman	Average runs scored	S.D
A	44	5.1
B	54	6.31

Which batsman is more consistent ?

14) Calculate the Standard deviation & Coefficient of Variance for the following

Marks Below :	5	10	15	20	25
No. of Students:	6	16	28	38	46

15) Find the Mean Deviation from the Mean :

CI	0-10	10-20	20-30	30-40	40-50
Frequency	3	8	15	16	6

16) Calculate the Mean & Standard Deviation for the data :

CI	0-10	10-20	20-30	30-40	40-50
Frequency	14	23	27	21	15