B.K. BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
A CBSE DAY-CUM-BOYS' RESIDENTIAL SCHOOL

POST MID TERM EXAMINATION 2025-26
APPLIED MATHEMATICS

Class: XI B | **Time: 1hr**
Date: 10/01/26 | **Max Marks: 25**
Admission no: | **Roll no:**

General Instructions:
Question 1 to 5 carries ONE mark each. Questions 6 to 9 carries TWO marks each. Questions 10 to 13 carries THREE marks each.

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1. $\lim_{x\to 2}\frac{log(x-1)}{x-2}$ *is equal to*
   a) 0 b) -1 c) 1/2 d)1
2. If f(x) = $\begin{cases}\frac{\sqrt{4+x}-2}{x} & x\neq 0\\ k & x=0\end{cases}$ *is continous at* $x=0$, *then the value of* k *is*:
   a) 1 b) 4 c) 1/4 d) 0
3. If y= $\sqrt{x}+\frac{1}{\sqrt{x}}$, then dy/dx at x=1 is :
   a) 1 b) 1/2 c) $1/\sqrt{2}$ d) 0
4. The measure of central tendency of a statistical data which takes into account all the data is:
   a) Mean b) Median c) Mode d) Range
5. If f(x)= $\frac{(3x+1)(2\sqrt{x}-1}{\sqrt{x}}$
   a) 5 b) -5 c) 6 d) 11/2
6. Find the derivative of the following function: $(ax+b)^2$
7. Differentiate the following function wrt x:$\sqrt{2x-3}$, x> $\frac{3}{2}$.
8. The marks of 9 students in a test were 13, 17, 20, 5,3,3,18,15 and 20. Find the three quartile.
9. Find the mean and variance of first 10 multiples of 3.
10. Find the following limit:$\lim_{x\to 0}\frac{\sqrt{1+3x}-\sqrt{1-3x}}{x}$.
11. If y= $\sqrt{logx+\sqrt{logx+\sqrt{logx+\cdots\infty}}}$, Prove that x (2y-1) $\frac{dy}{dx}$ =1.
12. Find the mean deviation about the mean of the following data:

Height in cm	95-105	105-115	115-125	125-135	135-145	145-155
No. of boys	9	13	26	30	12	10

13. Calculate the mean, variance and standard deviation of the following data:

Classes	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Frequency	3	7	12	15	8	3	2