

Unique Paper Code	: 32353301_OC
Name of the Paper	: SEC-Latex and HTML
Name of Course	: SEC-B.Sc. (Hons.) Mathematics
Semester	: III
Duration	: 3 Hours
Maximum Marks	: 38

*Attempt any four questions. All questions carry equal marks.*

1. Write a code in Latex to get the following outputs:

a.  $\vec{u} \times \vec{v} = \begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ u_1 & u_2 & u_3 \\ v_1 & v_2 & v_3 \end{vmatrix}$  and  $\|\vec{u} \times \vec{v}\| = \|\vec{u}\|\|\vec{v}\| \sin \theta$

b.  $y = \begin{cases} \int x dx, & \text{if } x \geq 0 \\ b^2, & \text{if } x < 0 \end{cases}$

2. Write a code using PSTricks to plot the following functions on the same coordinate system.

$$y = \sqrt[3]{x}, 0 < x < 4 \text{ and } y = -x^2, -4 \leq x \leq 4.$$

Show one as dotted red curve and the other one as dashed blue curve.

3. Write a code in Latex to get the following outputs:

a.  $a_0 + \frac{1}{a_1 + \frac{1}{a_2 + \frac{1}{a_3 + \dots}}}$

b.  $y = \begin{cases} x^4 + 3 \\ \geq x^4 \\ \geq 0 \end{cases}$

4. Write a code using PSTricks to plot the graph of the function

$$x = \frac{t^2}{1+t^2}, y = \frac{t^3}{1+t^2}, -3 \leq t \leq 3.$$

Set the unit length of  $x$ -axis to 2 cm and of  $y$ -axis to 1.5 cm.

5. Write a presentation in Beamer with the following content:

Slide -1 : contains the **Topic of the presentation, Author's Name and Institute**

Slide -2 : contains the definition of **Limit and Continuity with one example of limit.**

Slide -3: contains **Thank you**

6 Write an HTML code to generate the following web page:

**Department of Mathematics**  
**(University of Delhi)**

The Department of Mathematics is planning to organize the Department trip in April-2021.

**The tentative places for the trip are:**

- Shimla, Himachal Pradesh
- Mount Abu, Rajasthan
- Lansdowne, Uttarakhand

Interested students may submit their names and the places of interest to the undersigned.

***HOD***  
**Department of Mathematics**