**SARASWATI MAHILA MAHAVIDYALAYA,PALWAL**

 SESSION:**2021-22**

**LESSON PLAN** Sem : Even

Name of faculty : Ms. Mithlesh Gupta Class : BA-I

Designation : Associate Professor in Maths Subject : Vector Calculus

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| **Sr.No.** | **Topics/chapters** | **Lectures** | **Topics of assignment/test** |
| 1. | Scalar and vector product of three vectors, product of four vectors. Reciprocal vectors. Vector differentiation. Scalar Valued point functions, vector valued point functions, derivative along a curve, directional derivatives. | Lect 1 to Lect 20 | Test of Vector differentiation. |
| 2. | Gradient of a scalar point function, geometrical interpretation of grad , character of gradient as a point function. Divergence and curl of vector point function, characters of Div f and Curl as point function, examples. Gradient, divergence and curl of sums and product and their related vector identities. Laplacian operator. | Lect 21 to Lect 40 |  Test of Gradient, Divergence and curl of vector point function.  |
| 3. | Orthogonal curvilinear coordinates, Conditions for orthogonality fundamental triad of mutually orthogonal unit vectors. Gradient, Divergence, Curl and Laplacian operators in terms of orthogonal curvilinear coordinates, Cylindrical co-ordinates. | Lect 41 to Lect 60 | Test of Curl and Laplacian operators in terms of orthogonal curvilinear coordinates, Cylindrical co-ordinates. |
| 4. | Vector integration; Line integral, Surface integral, Volume integral.Theorems of Gauss, Green & Stokes and problems based on these theorms. | Lect 61 to Lect 80 | Assignment of theorems of Gauss, Green & Stokes and problems based on these theorms. |