

SYLLABUS

M.Sc. SEMESTER-II

(P. U.)

VECTOR ANALYSIS AND MECHANICS

Maths-623S

Total Marks : 100

Theory : 80 Marks

Internal Assessment : 20 Marks

Time : 3 hrs.

Note :

1. The question paper will consist of 9 questions. Candidates will attempt total five questions.
2. Question No.1 is compulsory and will consist of short answer type questions covering the whole syllabus.
3. There will be four questions from each Unit and the candidates will be required to attempt two questions from each Unit.
4. All questions carry equal marks.

UNIT-I

Vectors

Scalar and vector point functions, Differentiation and integration of vectors, Gradient divergence and curl operators, Green's and Stoke's theorems, Gauss' divergence theorem, Curvilinear co-ordinates.

UNIT-II

Mechanics

Generalized co-ordinates. Lagrange's equations. Hamilton's canonical equations. Hamilton's principle of least action. Reduction to the equivalent one body problem. The equations of motion and first integral. The equivalent one-dimensional problem and classification of orbits. The Virial theorem. Rigid body motion about an axis. Moving axis.