Course Instructors:

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Course Title : MT119- Calculus and Analytical Geometry

S.No	Final Contents / Topics	Exercises/Questions
1	**Interval and Inequality** problems. Absolute with inequality problems Domain and Range, Asymptote	Appendix E & F
2	**LIMITS AND CONTINUITY**: Concepts of limit. Evaluation of limits. Continuity and point of discontinuity. Types of discontinuity. Asymptote Problems on continuity and differentiability	1.1(Q#1-16) 1.2(Q#1-32,37-40) 1.5(Q#1-6,11-22 29,30,35,36) 2.2(Q46-48)2.3(Q65-69)
3	**DIFFERENTIAL CALCULUS:** Indeterminate forms ,L' Hospital Rule Newton's method (Root finding) Role's and Mean Value's Theorem.	3.6(Q#1-45) 4.7(Q#1-8) 4.8(Q#1-8)
4	Concavity, Increasing and Decreasing. Relative Extrema(1^{st} and 2^{nd} derivative test) Absolute Maxima and Minima	4.1(Q#6-10,15-30) 4.2(Q#3-5,7-12,25-40) 4.4(Q#7-16,21-28)
5	**INTEGRAL CALCULUS**: Techniques of integration Basic Integration ,Integration by parts Reduction formula ,Trigonometric substitution ,Hyperbolic function	7.1(Q#1-30) 7.2(Q#1-30,47-52,61,65) 7.4(Q#1-25,37-48) 6.9 (Q11-40,58-62)
6	Integration of Rational function by Partial fraction , u= tan(x/2) substitution Improper integrals.	7.5(Q#9-30) 7.6 (Q#65-70,87,88) 7.8(Q#3-32,37-40)
7	**Applications of Integration,** Area bounded by the curves. Volume by Disk and washer method	6.1(Q#1-18) 6.2(Q#1-26)
8	Arc length of plane curve:	6.4(Q#3-8,27-32)
9	**3D GEOMETRY: VECTORS** Parametric equations of lines in 3D	11.3,11.4 (Review) 11.5(Q#3-10,15-22, 29-34,49,50)
10	Plane in 3-space, Distance Problems involving planes, Intersecting planes.	11.6(11-20,41-48)