Tentative Lecture Schedule: **Calculus, Howard Anton 10th edition**

Week	Contents/Topics	Exercises	Practice Questions
1	**Partial Derivatives:** Introduction, Functions of Two or More Variables, Domain and its sketching, Level Curves and Level Surfaces	13.1	1-8,17-20,23-28, 43-44,51-60, 65-68
2	Limits and Continuity Limit Along Curves, open and closed sets, continuity, Limits at discontinuities, Limits by converting into polar coordinates, introduction of partial derivatives	13.2 13.3	1-26,34,35,38-40 1-13,17,18,25-50
3	Partial derivatives of functions of two or more variables, partial derivative function and notations, PD as rate of changes/slopes, PD from tabular data, implicit PDs, PDs and continuity, Higher order PDs, Equality of second order mixed derivatives,	13.3	57-65 ,69-100
4	Differentiability, Differentials and Local Linear App. The Chain Rule for PDs with tree diagram.	13.4 13.5	9-26 ,33-40 1-14,17-36,41-48
5	Directional Derivatives and Gradients Directional Derivatives, Gradients, Properties of gradients, Gradients are normal to level curves Tangent Planes and Normal Vectors	13.6 13.7	1-45,53-66 3-12
6	**MID TERM 1**		
7	Extreme value for two variables, Absolute & Relative Extrema,Extreme Value theorem, The 2nd order Partial test ,Lagrange Multipliers Method	13.8 13.9	1,2,9-18 5-12
8	**Multiple Integrals:** Double Integrals ,Fubini's theorem Double Integral over non-rectangular region (Type-1 and Type II)	14.1 14.2	1-16 1-12,15-25,47-56
9	Double Integral in polar coordinates. Triple Integrals.	14.3 14.5	1-10,23-34 1-12
10	Change of Variable in Multiple Integrals as Jacobians	14.7	1-12,35-38,44-46
11	**Fourier series.** Fourier Sine and Cosine series , Half range expansion	12.2 12.3	1-16 1-10,11-24,25-34
12	**MID TERM 2**		
13	**Vector Calculus:** Vector Fields, gradient, divergence and curl Line Integrals (along the line and curve)	15.1 15.2	15-28 7-14,19-30 33-40,45-48
14	Conservative Test , Potential function, Fundamental theorem of Line integral, work done Green's Theorem (along closed region)	15.3 15.4	1-18 1-14 ,29,30
15	Surface integrals Gauss-Divergence Theorem , flux of vector field	15.5 15.7	1-8 ,19,20,35-38 1-4 ,9-14
16	Stokes' Theorem	15.8	1-12