



## Course Content for Final Exam

Contents/Topics	Exercises
<b>Differentiation:</b> Chain rule Implicit differentiation.	<b>2.6</b> (7-40) <b>2.7</b> (3-18,25-28)
Indeterminate forms: L' Hospital Rule	<b>6.5</b> (7-43)
<b>Application of Derivatives:</b> Related Rates Role's and Mean Value's Theorem	<b>2.8</b> (10-20) <b>3.8</b> (1-8)
Increasing, Decreasing and Concavity Relative Extreme (1st and 2nd derivative test)	<b>3.1</b> (15-26) <b>3.2</b> (7-12, 25-32)
Riemann sums	<b>4.4</b> (35-48)
<b>Techniques of Integration:</b> Integration by Parts and Reduction formula Trigonometric substitution Integration of Rational function by Partial fraction $u = \tan(x/2)$ substitution Improper integrals.	<b>7.2</b> (1-30, 69-71) <b>7.4</b> (1-25, 37-48) <b>7.5</b> (9-30), <b>7.6</b> (65-70) <b>7.8</b> (3-32)
<b>Applications of The Definite Integral</b> Area bounded by the curves. Volume by Disk and Washer Method	<b>5.1</b> (1-14), <b>5.2</b> (1-20)
<b>Sequences and Series:</b> Sequences and limit of Sequences Geometric, Harmonic Series and Telescoping Sums The Divergence Test, The Integral Test, P-Series The Comparison, Ratio and Root Tests	<b>9.1</b> (7-19) <b>9.3</b> (1-14) <b>9.4</b> (9-22) <b>9.5</b> (5-20)