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|  | B.sc. 5 th sem Real analysis |
| Week | Topics |
| 1 | Riemann integral, Integrabililty of continuous and monotonic functions, |
| 2 | The Fundamental theorem of integral calculus. |
| 3 | Mean value theorems of integral calculus. |
| 4 | Improper integrals and their convergence, Comparison tests, Abel’s and Dirichlet’s tests, Frullani’s integral, |
| 5 | Integral as a function of a parameter. Continuity |
| 6 | Differentiability and integrability of an integral of a function of a parameter. |
| 7 | Definition and examples of metric spaces, neighborhoods, limit points, interior points, open and closed sets |
| 8 | closure and interior, boundary points, subspace of a metric space, equivalent metrices |
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| 10 | Continuous functions, uniform continuity, compactness for metric spaces, sequential compactnes |
| 11 | Bolzano-Weierstrass property, total boundedness, finite intersection property, continuity in relation with compactness |
| 12 | connectedness , components, continuity in relation with connectedness. |