

Shantilal Shah Engineering College, Bhavnagar

General Department

- Syllabus of Progressive Assessment Test(PAT) Oct-2019
- Subject: Mathematics-1(3110014)
- BE Semester-1(All Branches).

| Sr.No. | Name of Topics |
|--------|---|
| 1 | <p><i>Sequence and Series:</i></p> <ul style="list-style-type: none"> • Convergence and divergence of sequences, The Sandwich Theorem for Sequences. • Bounded Monotonic Sequences. • Convergence and divergence of an infinite series, geometric series, telescoping series. • Integral test, The p – series, zero test. • The Comparison test, The Limit Comparison test, Ratio test, Raabe's Test, Root test, • Alternating series test, Absolute and Conditional convergence. |
| 2 | <p><i>Partial differentiation:</i></p> <ul style="list-style-type: none"> • Functions of several variables, Limits and continuity, Test for non existence of a limit. • Partial differentiation, Mixed derivative theorem, differentiability, Chain rule, Implicit differentiation. • Tangent plane and normal line. • Total differentiation, Local extreme values, Method of Lagrange Multipliers. |
| 3 | <p><i>Matrix:</i></p> <ul style="list-style-type: none"> • Elementary row operations in Matrix, Row echelon and Reduced row echelon forms, • Rank by echelon forms, Inverse by Gauss-Jordan method. • Solution of system of linear equations by Gauss elimination and GaussJordan methods. • Eigen values and eigen vectors, Cayley-Hamilton theorem. |

Subject Coordinator