

SYLLABUS FOR GSAT-2020
For Admission to M.Sc. Data Science
Test Code: 101 D

Part – A: Mathematics (30 bits: 30 Marks)

Limits, Continuity, Differentiation and Integration:

Real valued functions, Limit of a function, Algebra of limits, Continuity of a function at a point, Uniform continuity, Derivative, Mean value theorems, Taylor's theorem, Riemann integral, Riemann integrable functions, Fundamental theorem on integral calculus

Groups:

Groups, subgroups and cyclic groups, Permutations, Isomorphism-definition and elementary properties, Cayley's theorem, Groups of Cosets, Normal subgroups-factor groups, the fundamental theorem of homomorphisms.

Rings:

Definition and basic properties, Fields, Integral domains, divisors of zero and cancellation laws, Integral domains, the characteristic of ring, some non-commutative rings, matrices over a field, homomorphism of rings-definition and elementary properties, maximal and prime ideal, prime fields

Differential Equations:

Linear differential equations, Exact differential equations, Simultaneous differential equations, orthogonal trajectories, equations solvable for p,x,y, solution of homogeneous linear differential equations of order n with constant coefficients, method of variation of parameters

Matrices:

Determinants, properties of determinants, elementary matrix operations and elementary matrices, the rank of a matrix and matrix inverse, system of linear equations, eigenvalues and eigenvectors, diagonalization, Cayley-Hamilton theorem

Part – B: Quantitative Ability (30 bits: 30 Marks)

Numbers, Average, Percentage, Area, Volume and Surface Area, Simple Interest, Profit and Loss, Heights and Distances, Ages, Ratio and proportion, Decimal fractions

MODEL QUESTIONS

Part – A: Mathematics

1. The derivative of a differentiable even function is []
a) odd function b) even function c) constant function d) none of these

2. The system of equations $2x + 3y + 4z + 1 = 0$, $2x + 6y + 8z + 3 = 0$, $x + y + z + 1 = 0$ has []
a) no solution b) a unique solution c) infinite number of solutions d) none of these

Part – B: Quantitative Ability

1. In the first 10 overs of a cricket game, the run rate was only 3.2. What should be the run rate in the remaining 40 overs to reach the target of 282 runs. []

a) 6.25

b) 6.5

c) 6.75

d) 7
