SHAKUNTALA KRISHANA INSTITUTE OF TECHNOLOGY KD-64

ASSIGNMENT-1 Prepared by-Prashant sir

Sub_Code-4005

SubjectMathematics(3rd)

Q1. Find the local maxima and minima of the function f(x)=x3−6x2+9x+15

Q2. Compute the definite integral of f(x)=e−x2 from 0 to 1.

Q3. Find the mean and variance of the following data set: 4,8,6,5,3,7.

Q4.Evaluate the integral:∫(3x2+4x+5) dx

Q5.A coin is tossed three times. What is the probability of getting exactly two heads.

Q6. Find the area under the curve y=x2+1 from x=0 to x=3.

Q7. Find the Taylor series of f(x)=ex up to the second-degree term.

Q8. Find the number of subsets of the set S={1,2,3,4,5}.

Q9.Prove by induction: For all n≥1 1+3+5+⋯+(2n−1)=n2.

Q10.Find the inverse Laplace transform of S/(S2+1)((S2+4).

Q11. Apply the Convolution theorem to solve

L-1{1/s(S2+4)}

Q12. Find the Laplace Transform for (cos2t-cos3t)/t

Q13.Evaluate ez/z(z+1)dz where C is the circle z=14

Q14. State and prove Cauchy's Integral Formula.

Q15. Determine the analytic function where the real part is e-x(x sin y-y cos y)