(V)

SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR

ROLL No: | | | | | | | | | | | | | **Total number of pages:[ ]**

Total number of questions:06

B.Tech. || ALL || 1st Sem

Applied Mathematics-1

Subject Code:BTAM-101a

Paper ID: (for office use)

Time allowed: 3 Hrs **Max Marks: 60**

Important Instructions:

- **All questions are compulsory**
- **Assume any missing data**
- **Additional instructions, if any**

PART A (2×10)

Q. 1. Short-Answer Questions: All COs

(a) Expand in the neibhourhood of (1,1).
(b) Find the arc length of y=Log(Secx);
(c) Write the formula of centre of gravity in 2-D for polar-coordinates.
(d) Define concavity and convexity?
(e) Evaluate
(f) If and are ir-rotational vector. Prove that are solenoidal vector.
(g) Write the formula of radius of curvature for polar curve.
(h) Write the equation of Normal line and Tangent plane.
(i) State Strokes theorem.
(j) Prove that =

PART B (8×5)

Q. 2. Compute for f(x,y) ; COa

OR

If sum of three positive numbers is constant prove that their product is maximum when they are equal. COa

Q. 3. Find the volume of Ellipsoid + COb

OR

Evaluate by using polar coordinates. COb

Q. 4. Prove that is ir-rotational and is solenoidal vector. COc

OR

Verify Green's Function Theorem for the ; C is the boundry of the closed region bounded by y=x & COc

Q. 5. Show that ds = around the circle COd

OR

Find the centroid of cardioid about the initial line. COd

Q. 6. Trace the curve COe