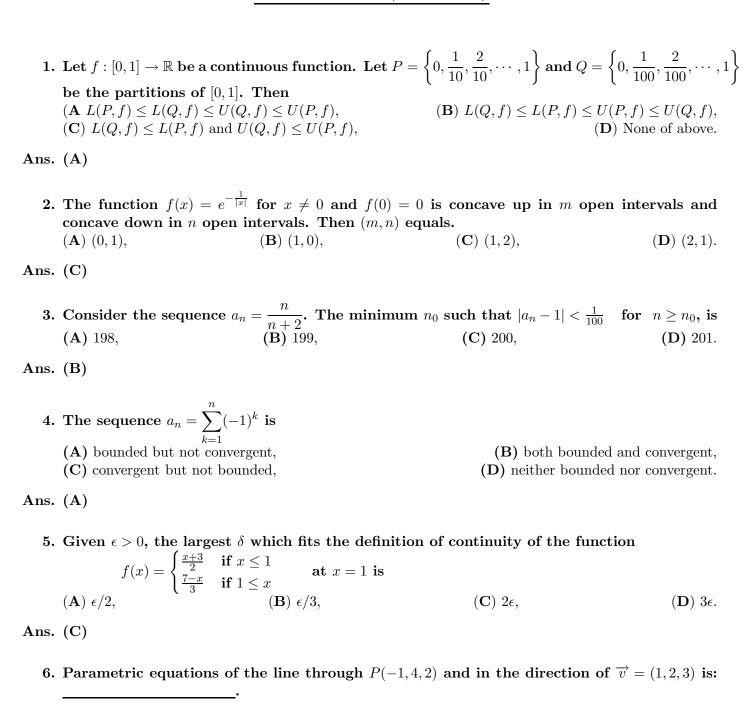
End Term Exam (Part-1)

MATHEMATICS-I

SOLUTIONS (Series: B)



(C) lemniscate,

(D) ray.

Ans. (A)

(A) circle,

Ans. x = -1 + t, y = 4 + 2t, z = 2 + 3t.

7. The curve $r = 2\cos\theta, 0 \le \theta \le \pi$ represents a

(B) cardioid,

8.	Let f be a scalar field defined on \mathbb{R}^2 and suppose directional derivatives of f exist for all directions. Then f is continuous. TRUE or FALSE
Ans.	FALSE
	The value of the line integral $\int_C x - y ds$, where C is the line segment from $(1,3)$ to $(5,-2)$ is:
Ans.	$\frac{5}{2}\sqrt{41}$.

10. The value of the double integral $\int \int_D e^{-(x^2+y^2)} dA$, where D is the region between the two circles $x^2 + y^2 = 1$ and $x^2 + y^2 = 4$ is (A) $\pi(e^{-1} - e^{-3})$, (B) $\pi(e^{-1} - e^{-4})$, (C) $\pi(e^{-2} - e^{-3})$, (D) $\pi(e^{-2} - e^{-4})$.

Ans. (B)