$$-\sqrt{1+\frac{x}{2}}$$

[5]

4. Use sandwich theorem (else you would lose marks) to evaluate the following limit

$$\lim_{x\to 0} \frac{1-\cos x}{x^2}$$

[7]

5. Evaluate the following limit (avoid using L.Hopital Rule else you would lose marks)

$$\lim_{x\to 0}\frac{\sqrt[3]{1+x}-1}{x}$$

[8]

6 Graph the given rational function. Include the graphs and equations of all the asymptotes.

$$y = \frac{2x}{x+1}$$

[5]

7. Given a function f(x), a point c, and a positive number  $\epsilon$ . Find  $L = \lim_{x \to c} f(x)$ . Then find a number  $\delta > 0$  such that |f(x) - L| < 0 whenever  $0 < |x - c| < \delta$ .

$$f(x) = \sqrt{1-5}x$$
,  $c = -3$ ,  $\epsilon = 0.5$ 

[10]

1

45

7

## Analytical Geometry

(MT1003 4th 2024

Date: Septembe

Course Instructo<sup>5)</sup>

Dr. Mazhar Husein (Moderator)

Dr. Sonia Hanif

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Dr. Ayesha Razzaq

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Dr. Atta Ullah

Mr. Abdul Hafeez

Ms. Eesha Meer

Mr. Wagar Azeem

Roll NO







Sessional-I Exam

Total Time (Hrs.):

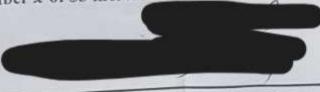
Total Questions:

Total Marks:

Do not write below this line

- Attempt all the questions in the given order
- Write question number on your answer with bold faced marker.

Three hundred books sell for \$40 each, resulting in a revenue of (300)(\$40) = \$12,000. For each S5 increase in the price, 25 fewer books are sold. Write the revenue R as a function of the number x of \$5 increases.



[5]

2. Write the formula for gof and find its domain and range when  $f(x) = 2 - x^2$  and  $g(x) = \sqrt{2 + x}.$ 

[5]

3. Graph the given function by starting with the graph of one of the standard function and applying an appropriate transformation