

Name. _____		Printed Pages:01		
Student Admn. No.: _____				
<b>University Polytechnic, Galgotias University</b> <b>Summer Term Examination – July - August 2024</b> [Programme: Dip. EE IV Sem ] [Semester: II ) [Batch: 1 ]				
Course Title: Elementary Mathematics-II		Max Marks: 100		
Course Code: QMAT1011		Time: 3 Hrs.		
<b>Instructions:</b>	1. All questions are compulsory. 2. Assume missing data suitably, if any.			
		K Level	COs	Marks
<b>SECTION-A (15 Marks)</b>		<b>5 Marks each</b>		
1.	Define function with an example.	K1	CO1	5
2.	Find $\frac{\sin(x-\frac{\pi}{2})}{(\frac{\pi}{2}-x)}$ .	K2	CO2	5
3.	Find the derivative log sin x with respect to x.	K2	CO3	5
<b>SECTION-B (40 Marks)</b>		<b>10 Marks each</b>		
4.	Differentiate w.r.t. x, the function, $e^{\sec^2 x} + 3\cos^{-1}x$ .	K3	CO3	10
5.	Show that slop of the tangent to the curve $y = x^3$ at the point $x=1/2$ is $3/4$ .	K3	CO2	10
6.	Discuss the maxima minima of function $f(x) = 3x^3 - 6x^2 - 5x + 7$ .	K3	CO4	10
7.	Explain the complex number in polar form.	K4	CO5	10
<b>SECTION-C (45 Marks)</b>		<b>15 Marks each</b>		
8.	Find the value of integral: $\int \frac{\cos x}{\sqrt{1+\sin x}} dx$	K4	CO4	15
9.	Show that $(1+i)^n + (1-i)^n = 2^{\frac{n+2}{2}} \cos \frac{n\pi}{4}$ .	K4	CO5	15
10.	Find the smallest positive integer such that $\left(\frac{1-i}{1+i}\right)^n = 1$ .	K5	CO4	15