

QP CODE: D4BMT2405	(Pages: 2)	Reg. No :
		Name :
FOURTH SEMESTER FYUGP EXAMINATION, APRIL 2026		
Discipline Specific Core (DSC) Courses - Major		
MAT4CJ205 : FUNDAMENTALS OF PYTHON AND SAGEMATH		
(Credits: 4)		
Time: 2 Hours	Maximum Marks: 70	
Section A		
Answer the following questions. Each carries 3 marks (Ceiling: 24 marks)		
1. Write the code in Sage to plot the graph of $f(x) = x^2 - 4x + 3$ for $-2 \leq x \leq 4$.	BL2	CO3
2. Explian pylab with an example.	BL6	CO2
3. What is the use of break statement in python?	BL2	CO1
4. Find the Reimann Left Sum of the function $f(x) = x^3$ on $[0,1]$, $n=4$ using Sage.	BL2	CO3
5. Write the general form of an <i>if else</i> statement.	BL2	CO1
6. What will be the output of print type ("ABCD")?	BL6	CO1
7. Write a python function to find the maximum of two numbers.	BL3	CO1
8. Write a python program to draw sin(x).	BL3	CO2
9. Write code to find sin(45°) using degree mode.	BL3	CO3
10. In Sage, how would you find 25/4 as a decimal value?	BL2	CO3
Section B		
Answer the following questions. Each carries 6 marks (Ceiling: 36 Marks)		
11. Find the syntax error in the following code and correct it. <pre> x=1 while x <= 10: print x * 5 </pre>	BL4	CO1
12. Give an example of a python program to create mesh grids.	BL6	CO2
13. How to draw rhodonea curve using python program?	BL3	CO2
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14. Write the code in Sage to differentiate $f(x)=\sin(x)+\cos(x)$.	BL2	CO3
15. What is the use of print statement in python? Explain with an example.	BL2	CO1
16. What is a nested loop? Give an example.	BL6	CO1
17. Write a python program to draw circle using turtle graphics.	BL3	CO2
18. How to use numpy in python programming? Explain with an example.	BL3	CO1
Section C		
Answer any one question. Each carries 10 marks (1 x 10 = 10 Marks)		
19. Write a python program to solve Gauss Elimination Method.	BL3	CO1
20. a) Write a python program to calculate the value of a definite integral using trapezoidal rule. b) Write a python program to arrange given numbers in ascending order.	BL5	CO1
CO : Course Outcome		
BL : Bloom's Taxonomy Levels (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)		