22MAP210BN

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION DECEMBER 2025
(Second Semester)

Branch - **MATHEMATICS**

MAJOR ELECTIVE COURSE – I MATLAB AND LATEX

Time: Three Hours | Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	A two-dimensional array, also called a _____, has numbers in rows and columns a) scalar b) matrix c) vector d) array	K1	CO1
	2	The _____command creates a square matrix with n rows and n columns in which the diagonal elements are equal to 1 and the rest of the elements are 0. a) eye(n) b) zeros (m,n) c) ones(n,n) d) eye(m,n)	K2	CO1
2	3	The _____command can be used to display output (text and data) on the screen or to save it to a file a) disp b) printf c) fprintf d) output	K1	CO2
	4	A basic 3-D plot is created with the _____command a) plot b) axis c) subplot d) plot3	K2	CO2
3	5	When a _____command appears outside a loop in a script or function file, it terminates the execution of the file. a) break b) while c) do-while d) continue	K1	CO3
	6	A _____statement can have more than one value. a) continue b) switch-case c) conditional d) case	K2	CO3
4	7	A _____is a command that changes the values or meanings of certain parameters or commands without printing any text a) declaration b) environment c) itemize d) argument	K1	CO4
	8	_____specifies the indentation from the left margin for the equation numbers when fleqn is selected a) \newcounter b) \mathindent c) \setcounter d) \setlength	K2	CO4
5	9	When two mathematical quantities are compared, they are connected by a_____. a) variable b) statement c) relation d) calligraphic letters	K1	CO5
	10	The _____ command explains about vertical spacing between floats appearing either at the top or at the bottom of a page. a) \textfloatsep b) \floatsep c) \floatpagefraction d) \intextsep	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Discuss: Rules about Variable Names in LaTeX.	K4	CO1
		(OR)		
	11.b.	Explain: Built-In Functions for Handling Arrays.		
2	12.a.	Explain Plots with Logarithmic Axes.	K3	CO2
		(OR)		
	12.b.	Distinguish between script files and function files.		
3	13.a.	Illustrate the if-else-end Structure work in LaTeX.	K4	CO3
		(OR)		
	13.b.	An aluminum thin-walled sphere is used as a marker buoy. The sphere has a radius of 60 cm and a wall thickness of 12 mm. The density of aluminum is kg/m3. The buoy is placed in the ocean, where the density of the water is 1030 kg/m3. Write a program to determine the height h between the top of the buoy and the surface of the water.		
4	14.a.	Discuss about Line Breaking in LaTeX.	K5	CO4
		(OR)		
	14.b.	Explain Page style in LaTeX.		
5	15.a.	List out Math style parameters used in LaTeX.	K4	CO5
		(OR)		
	15.b.	Explain briefly about Problems with importation: pdfTEX.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Discuss briefly about Element-By-Element Operations.	K4	CO1
2	17	Briefly discuss about Histograms and Polar Plots.	K5	CO2
3	18	Discuss in detail about the Basic Fitting Interface.	K4	CO3
4	19	Explain in detail about special characters used in LaTeX.	K6	CO4
5	20	Explain briefly about Style parameters for floats.	K5	CO5

Z-Z-Z END