22MAP210BN

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 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	What is a name made of a letter or a combination of several letters that is assigned a numerical value? a) operator b) constant c) variable d) scalar	K1	CO1
	2	A script file is a sequence of MATLAB commands, also called a _____. a) program b) command c) variable d) directory	K2	
2	3	Which character can be included in the text by typing \name of the letter within the string? a) English b) italic c) Greek d) letter	K1	CO2
	4	A computer program is a sequence of _____. a) input variable b) packages c) computer comments d) operators	K2	
3	5	What is a user defined function that is written inside another user defined function? a) nested function b) primary function c) sub function d) inside function	K1	CO3
	6	What is the process of finding a function that can be used to model data? a) curve fitting b) interpolation c) roots of a polynomial d) co.efficients of a polynomial	K2	
4	7	What is the purpose of the command \pagestyle{} in LaTeX? a) It sets the font style of the document b) It adds page numbers to the document c) It sets the page margins d) It creates a new section in the document	K1	CO4
	8	What does the command \tableofcontents do in LaTeX? a) It creates a table of figures in the document b) It creates a table of equation in the document c) It creates a table of contents in the document d) It creates a table of references in the document	K2	
5	9	What is the purpose of the command \include graphics{} in LaTeX? a) It includes an image in the document b) It creates a new section in the document c) It sets the font style of the document d) It adds a label to an equation or figure for referencing	K1	CO5
	10	A usual frame maximum should be about ___words. a) 30 b) 40 c) 80 d) 50	K2	

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.	Explain arithmetic operations with scalars.	K3	CO1
		(OR)		
	11.b.	Using the ones and zeros commands, create a 4×5 matrix in which the first two rows are $0's$ and the next two rows are $1's$.		
2	12.a.	Explain the fplot command.	K3	CO2
		(OR)		
	12.b.	Explain relational and logical operators.		
3	13.a.	Describe structure of a function file.	K4	CO3
		(OR)		
	13.b.	Explain the basic fitting interface.		
4	14.a.	Discuss various declarations that are available for changing the font size.	K4	CO4
		(OR)		
	14.b.	Explain page format in LaTeX.		
5	15.a.	Discuss main elements of math mode in LaTeX.	K5	CO5
		(OR)		
	15.b.	Explain graphics packages in LaTeX.		

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	Describe mathematical operators with arrays.	K4	CO1
2	17	Discuss about Plots with special graphics.	K4	CO2
3	18	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 $\rho_{Al} = 2690\ kg/m^3$. The buoy is placed in the ocean where the density of the water is $1030\ kg/m^3$. Determine the height h between the top of the buoy and surface of the water.	K4	CO3
4	19	Explain parts of the document in LaTeX.	K5	CO4
5	20	How to create frames in Beamer. Explain it.	K5	CO5

Z-Z-Z END