D1BAM2401 (S1)

Name: ....

Reg. No.: ....

FIRST SEMESTER FYUGP EXAMINATION NOVEMBER 2025

Improvement/Supplementary (2024 Admissions)

MULTI DISCIPLINARY COURSE

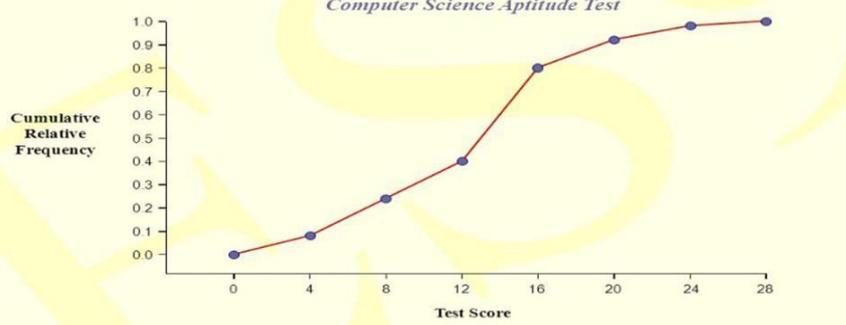### AMA1FM105(1):   MATRICES AND BASICS OF PROBABILITY THEORY

Time : 1 ½ Hrs.   Maximum Marks: 50
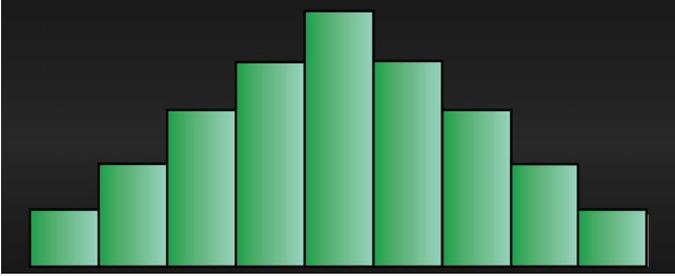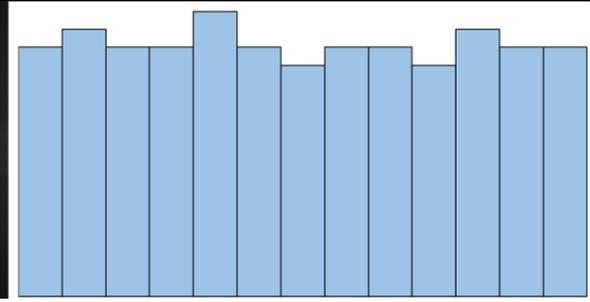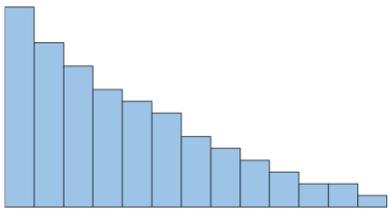
M – Mark   BL - Bloom's Taxonomy Level (1 to 6)   CO - Course Outcome

No.	Question	M	BL	CO
Section A: Answer all questions. Each carries 2 marks. **Ceiling: 16 Marks**			
1.	Find the sum of the matrices $\begin{matrix} 1 & 2 & 3 \\ 2 & 3 & 1 \end{matrix}$ and $\begin{matrix} 3 & -1 & 3 \\ -3 & 2 & -4 \end{matrix}$.	2	1	CO1
2.	Determine the reciprocal of $\begin{matrix} 3 & 4 \\ -9 & 6 \end{matrix}$	2	2	CO1
3.	Write the transpose of $\begin{matrix} 21 & 11 & 28 \\ 11 & -5 & -23 \\ -6 & 13 & -8 \end{matrix}$.	2	1	CO1
4.	Solve the system of equations using Cramer's Rule. $3x+2y=7$ $2x+y=4$	2	2	CO2
5.	Define descriptive and inferential statistics.	2	1	CO3
6.	Distinguish between a parameter and a statistics.	2	2	CO3
7.	Use the ogive to approximate 1. The number in the sample. 2. The location of the greatest increase in frequency	2	2	CO3

No.	Question	M	BL	CO
8.	Determine the level of measurement of the data set. 1. The years that a television show on ABC won the Emmy for best comedy series are listed. 1955 1979 1980 1981 1982 1988 2010 2011 2012 2. Top five business schools in the U.S. for a recent year according to Forbes are listed. 1. Harvard 2. Stanford 3. Chicago 4. Pennsylvania	2	4	CO3
9.	Find mode of the following data set. 324 462 564 450 638 564 670 618 624 564 540 980 670 540 670 830 670 564 670 564	2	2	CO3
10.	A student advisory board consists of 17 members. Three members serve as the board's chair secretary, and webmaster. Each member is equally likely to serve in any of the position. What is the probability of selecting at random the three members who currently hold the three positions?	2	3	CO3

Section B: Answer all questions. Each carries 6 marks.
Ceiling: 24 Marks

No.	Question	M	BL	CO
11.	Evaluate A(B+C) and AB+BC . $A=\begin{bmatrix}1 & 2\\3 & 4\end{bmatrix}$ $B=\begin{bmatrix}5 & 6\\7 & 8\end{bmatrix}$ $C=\begin{bmatrix}0 & 2\\1 & -2\end{bmatrix}$	6	5	CO1
12.	Estimate the matrix of minors of $\begin{bmatrix}4 & -7 & 6\\-2 & 4 & 0\\5 & 7 & -4\end{bmatrix}$	6	4	CO1
13.	Solve the simultaneous equations 2x+3y=3, 5x+4y =11 using Gauss elimination method.	6	5	CO2

14.	Discuss the shapes of distributions. Determine whether the approximate shape of the distribution in the histogram is symmetric, uniform, skewed left, skewed right or none of these.	6	1	CO3
	a.			
	b.			
	c.			
15.	In an experiment of rolling a six faces die, find each of the following probabilities. a. Rolling a 5 or a number greater than 3 b. Rolling a number less than 4 or an even number. c. Rolling a 2 or an odd number.	6	5	CO3

Section C: Answer any one question. Each carries 10 marks. (1 x 10 = 10 Marks)

No.	Question	M	BL	CO
16.	Use matrices to solve the simultaneous equations. x+y+z=4 2x-3y+4z=33 3x-2y-2z=2	10	3	CO2
17.	A probability experiment consists of rolling a 12- sided die. Find the probability of the following events. a) Event A : Rolling a 2 b) Event B : Rolling a 10 c) Event C : Rolling a number less than 8 d) Event D : Rolling a number divisible by 3 e) Event E : Rolling a number divisible by 5 f) Event F : Rolling number greater than 4	10	3	CO3