

## MTHM Sem.-1 Examination

## MTHM-103

## Business Mathematics of Service Industries

Time : 2-30 Hours]

February-2025

[Max. Marks : 70

**Instructions:**

- 1) Figures to the right indicate Full Marks.
- 2) Do not write anything on the question paper.
- 3) Do not use scientific calculator.

Q.1	Solve the Questions: 1) If $10 \times n! = 7200$ the find value of n. 2) If $(n + 1)! = 120$ then find the value of n. 3) How many multiples of 4 lie between 10 & 250.	5 5 4
Q.2	Solve the Questions: 1) How many 3digit numbers are divisible by 7. 2) Solve the following sum by using binomial expansion $(99)^4$ 3) Samir started work in 1995, at an annual salary of Rs. 5000 and received an increment of Rs. 200 each year. In which year did his income reach Rs. 7000  <b>OR</b>  Solve the Questions: 1) $2000+1995+1990+1985+1980+\dots +50$ 2) In how many ways can 4 red, 3 yellow and 2 green discs be arranged in a row if the discs of the same colour are indistinguishable? 3) $(2x - 5)^5$	5 5 4
Q.3	Solve the Questions: 1) If $56 \times n! = 8!$ then find the value of n.  2) $nC_2 = 45$ then find the value of N. <b>OR</b>  Solve the Questions: 1) If $nP_3 = 720$ then find the value of n.  2) 7,10,13,15, _____ 21 <sup>th</sup> term, then $s_{21} =$ _____	14

(P.T.O)

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Q.4	Find the value of x and y by using Interpolation.						14
	Year	2005	2006	2007	2008	2009	
	Production in tons	5	x	10	15	26	y
<b>OR</b>							
Solve the Questions: 1) If $a_1 = -27$ & $d = 5$ of an arithmetic sequence then $s_8 =$ _____							
2) -3,2,7,12_ _ _ _ _ , 25 <sup>th</sup> Term, then $a_{25} =$ _____							
Q.5	Solve the Questions:						5
	1) How many terms are there in an AP 9,18,27, 36...4950						5
	2) $45+50+55+60+\dots+1000$						4
	3) $(3a + 2)^5$						