

Internal Assessment Test - I

Sub:	Business Statistics					Code:	24MBA104
Date:	05-02-2025	Duration:	1.30 Hr	Max Marks:	50	Sem:	I
						Branch:	MBA

SET- I

Part A - Answer Any Two Full Questions ( 2\* 20 = 40 marks)

- 1 (a) Recall the term Probability and Solve the Problem.

A company is to appoint a person as its managing director, who must be an M.Com, MBA and IAS, the probability of which are one in twenty five, one in forty and one in fifty respectively. Find the probability of getting such a person to be appointed by the company.

- (b) Summarize the case given below.

It is found that the monthly average of electric charges was Rs. 2,460 and standard deviation Rs. 120. The monthly average of wages was found to be Rs. 42,000 and a standard deviation of Rs. 1200. State which one is more variable?

- (c) Calculate the co-efficient of correlation between the two variables using Karl Pearson's.

Marks in A/c's	1	2	3	4	5
Marks in BS	6	7	8	9	10

- 2 (a) Describe and compute the Probability Value.

A manufacturer knows that the condensers he makes contain on the average 1% of defectives. He packs them in boxes of 100. What is the probability that a box picked at random will contain 3 or more faulty condensers? Use Poisson Distribution.

- (b) Discuss the given case and trace out the missing frequencies if its Median is 27.5 and the number of items is 50.

Marks	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	4	?	20	?	7	3

- (c) Solve the problem and fit a straight-line trend by the method of least square and tabulate the trend values for the following data:

Year	2017	2018	2019	2020	2021	2022	2023
Value	70	75	90	98	84	91	100

Also estimate the trend and state the monthly increase in the value.

- 3 (a) Describe the situation and compute the probability value.

Find the probability of getting 4 heads in 6 tosses of a fair coin? Use Binomial Distribution.

- (b) Explain the term Mean and Determine the value of Median, 9<sup>th</sup> Decile and 80<sup>th</sup> Percentile from the following series:

Marks	OBE	
	CO	RBT
[03]	CO3	L1
[07]	CO1	L2
[10]	CO2	L3
[03]	CO3	L1
[07]	CO1	L2
[10]	CO4	L3
[03]	CO3	L1
[07]	CO1	L2

Marks	5-14	15-24	25-34	35-44	45-54	55-64
No of Students	2	7	5	4	11	13

- (c) Outline the given case and estimate the value of Y when X = 4 and the value of X when Y = 24. Use Normal Equation Method. [10]

X:	1	3	5	7	9
Y:	15	18	21	23	22

### Part B - Compulsory (01\*10=10 marks) – CASE STUDY

4

Derive the Probability Values for each case.

The mean and standard deviation of the wages of 6000 workers engaged in a factory are Rs. 1,200 and Rs. 400 respectively. Assuming the distribution to be normal estimates:

- Percentage of workers getting wages above Rs. 1,600.
- Number of workers getting wages between Rs. 600 and Rs. 900.
- Number of workers getting wages between Rs. 1,100 and Rs. 1,500.

[10]

CO2

CO3

L5

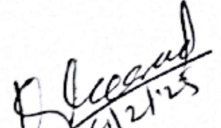
Course Outcomes (COs)		PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4
CO1:	Understand how to organize, manage, and present the data.	1b, 2b, 3b					1b, 2b, 3b			
CO2:	Use and apply a wide variety of specific statistical tools.		1c, 3c					1c, 3c		
CO3:	Understand the applications of probability in business.	1a, 2a, 3a, 4					1a, 2a, 3a, 4			
CO4:	Effectively interpret the results of statistical analysis.	2c								2c
CO5:	Develop competence of using computer packages to solve the problems.									

Cognitive level	KEYWORDS
L1 - Remember	list, define, tell, describe, recite, recall, identify, show, label, tabulate, quote, name, who, when, where, etc.
L2 - Understand	describe, explain, paraphrase, restate, associate, contrast, summarize, differentiate interpret, discuss
L3 - Apply	calculate, predict, apply, solve, illustrate, use, demonstrate, determine, model, experiment, show, examine, modify
L4 - Analyze	classify, outline, break down, categorize, analyze, diagram, illustrate, infer, select
L5 - Evaluate	asses, decide, choose, rank, grade, test, measure, defend, recommend, convince, select, judge, support, conclude, argue, justify, compare, summarize, evaluate
L6 - Create	design, formulate, build, invent, create, compose, generate, derive, modify, develop, integrate

*Theoretical Knowledge; PO2-Foster Analytical and Critical Thinking Abilities for data-based decision making;  
- Develop Value Based Leadership; PO4 -Ability to Understand and communicate various business aspects to global;  
5 - Ability to lead themselves and others in the achievement of organizational goals contributing effectively to a team  
environment;  
PSO1- Comprehend Contemporary features of Business Management Science and its administration  
PSO2- Analyze and interpret the dynamic situations for making Business Management strategies  
PSO3- Handle responsibility with the ethical values for all actions undertaken by them  
PSO4- Adapt and focus on achieving the organizational goal and objectives with complete zeal and commitment.*

  
CI



  
HQB 4/2/25



**SCHEME OF EVALUATION**  
**Internal Assessment Test 1- Feb 2025**

Sub: BUSINESS STATISTICS  
Max  
Date: 05-02-25 Duration: 90mins Marks: 50 Sem: I

Code: 24MBA04  
Branch: MBA

Note: Part A - Answer Any Two Full Questions (20\*02=40 Marks)

Part B - Compulsory (01\*10= 10marks)

Part	Question #	Description	Marks Distribution	Max Marks
A	1	a) Probability - How likely something is to happen $P = 0.000002$	1/2 marks for meaning 1/2 marks for final solution	3
		b) $\hat{x} = 2460, C = 120$ $\hat{x} = 42000, C = 1200$ $C.V. = \frac{C}{\hat{x}} \times 100$ ① 4.88 ② 2.85 Electric charge is max variable	③ m for computation ③ m for computation ① m for solution	7
		c) $r = \frac{N \sum xy - (\sum x)(\sum y)}{\sqrt{N \sum x^2 - (\sum x)^2} \sqrt{N \sum y^2 - (\sum y)^2}}$ $r = 0.00 \rightarrow 1.00$	5 m for working notes 5 m for solution	10

Perfectly perfect positive correlation.

2	a)	Poisson Distribution $P(300 \text{ more}) = 1 - P(0) + P(1) + P(2)$ $= 0.0805$	3 m for Solution	3	20 M
	b)	median = 250 $n = 50$ $f_1 = 6$ $f_2 = 10$	5 m for working calculation 2 m for Solution	7	
	c)	$y = a + bx \Rightarrow 86.8571 + 4.1429x$ 2017 $\Rightarrow$ 2018 $\Rightarrow$ 2019 $\Rightarrow$ 2020 $\Rightarrow$ 2021 $\Rightarrow$ 2022 $\Rightarrow$ 2023 $\Rightarrow$	7 m for equation 3 m for monthly Increase	10	

monthly Increase = 0.3452

3	a)	Binomial Distribution $P(4 \text{ Heads}) = nC_x p^x q^{n-x}$ $= 0.2343$	3 m for Solution	3	20 M
	b)	Median = 47.23 9th Decile = 61 80th percentile = 58.04	3 m for Median Calculation, 2 m for Da 9 2 m for 80th.	7	
	c)	$y = 15.05 + 0.95x$ $x = -12.5824 + 0.888y$ $y = 18.85, x = 4 (\text{given})$	4 marks for equation of equation 2 m for solution	10	

B	4	a)	$\hat{x} = 1600$ $R(1600) = 952.2 = \underline{\underline{952}}$	(3m)	10	10M
			$\hat{x} = 600 \text{ \& } 900$ $R(600 \text{ \& } 900) = 4239.5$ $= \underline{\underline{4240}}$	(3m)		
			$\hat{x} = 1100 \text{ \& } 1500$ $R(1100 \text{ \& } 1500) = 2232.6$ $= \underline{\underline{2233}}$	(4m)		

5/7/2025