SOMAIYA
VIDYAVIHAR UNIVERSITY

Dr. Shantilal K. Somaiya School of Commerce and Business Studies

Knowledge Alone Liberates

Somaiya Vidyavihar

QUESTION PAPERS

BRANCH: Bachelor of Commerce (Hons.)	SEM: II
	APR-2024

Sr. No.	Subject	Available
1.	231U77L201 – Statistical Analysis & Optimization	
2.		
3.		
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14.		

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VIDYAVIHAR UNIVERSITY

Semester (December 2023 to April 2024)
Examination: End Semester Examination April 2024 (UG Programmes)

Programme code: 77 **Programme: FYBCOM HONS**		**Class: FY**	**Semester: II**
Name of the Constituent College: S K Somaiya College (SKSC)		**Name of the Department** : Commerce	
Course Code: 231U77K201		**Name of the Course: Statistical Analysis and Optimization**	
Duration : 2 Hrs.		**Maximum Marks : 60**	

Instructions: 1) All Questions are compulsory.
2) Figures to the right indicate full marks.
3) Use of SIMPLE Calculator is allowed.
4) Graph paper will be provided on request.

Question No.		Max. Marks	Co Attainment
Q.1. A	1) Find the effective rate equivalent to nominal rate 10% per annum when compounded i) half-yearly ii) quarterly	03	CO1
	2) Jane won a lottery worth $20,000,000 and has opted for an annuity payment at the end of each year for the next 10 years as a payout option. Determine the amount that Jane will be paid as annuity payment if the constant rate of interest in the market is 5%.	04	

B	1. Explain with respect to Excel:
	    i. Logical Functions
	    j. Financial functions: ppmt() and ipmt()
	 Write steps in Excel to enter name(Col A) and marks out of 40 in Col B for 5 students . Convert the marks out of 40 to marks out of 60 in Col C then calculate total of 40 and 60(100).
		08	CO1

	OR		
Q.1. C	1) Write steps in Excel to do the following: Consider a loan with an annual interest rate of 5%, a 2-year duration and a present value (amount borrowed) of $20,000. Calculate EMI.	03	CO1
	2) Define annuity. Explain its types.	04	
D)	Answer with respect to Excel: 1) Types of Data. 2) Worksheet operations.	08	CO1
Q 2 A	Find mean and mode for following data	08	CO2
Q 2 B	A manager believes that 18% of the company's employees work overtime each week. It is observed the proportion of this week is 13% in a sample 250 employees. Can we accept managers belief at 1% level?	07	CO4
	OR		

For Q 2 A:

Marks	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of students	12	14	32	45	16	34	32

Q 2 C	Find coefficient of variation for following data	08	CO2

CI	5-15	15-25	25-35	35-45	45-55	55-65	65-75
F	12	15	10	12	11	4	13

Q 2 D	Two types of products are tested for their length of lives and the following data is obtained, is there a significant difference in the mean lives of two products? check at 5% level of significance	07	CO4

	Number	Mean	Standard deviation
Type 1	49	600	11
Type 2	38	610	12

Q 3	Solve following LPP using simplex method, Maximize Z= 9x1+4x2 Subject to, 4x1+3x2≤ 12 4x1+x2≤8 4x1+9x2≤8 x1,x2≥0	15	CO3

OR

Q 3	For the following transportation model find optimum solution.	15	CO3

	W1	W2	W3	W4	Supply
F1	42	32	50	26	11
F2	34	36	28	46	13
F3	64	54	36	82	19
Demand	6	10	12	15	

Q 4	Answer the following (Any 3 out of 5)	15	CO 1,2,3,4
1.	State advantages of CAGR.		
2.	Three composition instructors recorded the number of spelling errors which their students made on a research paper. At 1% level of significance test whether there is significant difference in the average number of errors in the three classes of students.		

Instructor 1	2	3	5	0	8		
Instructor 2	4	6	8	4	9	0	2
Instructor 3	5	2	3	2	3	3	

Tabulated Value = 3.6823.

3.	Find Mean and Median for 34,65,54,76,78,34,65,66		
4.	Five tasks are assigned to five workers. Find optimal assignment of workers and tasks.		

	J1	J2	J3	J4	J5
W1	28	22	26	20	27
W2	17	16	18	20	22
W3	11	13	14	16	17
W4	13	12	11	8	10
W5	11	10	6	8	9

5.	The mean life of a bulb manufactured by a company is advertised to be 1500 hrs. A random sample of 64 bulbs is taken and the mean life was found to ne 1476 hrs. with standard deviation of 88 hrs. check whether the advertised mean is accepted or not at 10% level of significance.		