STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 600 086
(For candidates admitted from the academic year 2023 – 2024 and thereafter)

M.A. DEGREE EXAMINATION, APRIL 2026
BRANCH III - ECONOMICS
SECOND SEMESTER

COURSE : CORE
PAPER : RESEARCH METHODS AND ANALYSIS – II THEORY
SUBJECT CODE: 23EC/PC/RM24
TIME : 3 HOURS MAX. MARKS: 60

Q. No.	**SECTION A** **Answer any TWO out of THREE questions in about 300 words each. (10 X 2 = 20)**	**CO**	**KL**
1	Differentiate between Inductive and Deductive methods of Research.	1	1
2	List out the Characteristics of Ethnographic Studies	1	1
3	Explain the uses of Non-Linear Regression Models in Economics.	1	1
Q. No.	**SECTION B** **Answer any TWO out of THREE questions in about 300 words each. (10 X 2 = 20)**	**CO**	**KL**
4	Discuss the procedure adopted for testing a hypothesis.	**2**	**2**
5	Explain the Properties of Normal distribution.	**2**	**2**
6	Outline the Components of Time Series Analysis	**2**	**2**
	SECTION C **Answer any ONE out of TWO questions in about 600 words each. (20 X 1= 20)**		
7	Enumerate the key applications of Dummy variables in Research.	**3**	**3**
8	Assess the various methods of qualitative research.	**3**	**3**

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M.A. DEGREE EXAMINATION, APRIL 2026
BRANCH III - ECONOMICS
SECOND SEMESTER

COURSE : CORE
PAPER : RESEARCH METHODS AND ANALYSIS – II (PRACTICAL)
SUBJECT CODE:23EC/PC/RM24
TIME : 3 HOURS MAX. MARKS: 40

Q. No.	SECTION A Answer any TWO out of THREE questions (2 X 10 = 20)	CO	KL
1	A researcher collected exam performance scores (out of 100) from students who prepared using two different study methods: Self-Study and Guided Coaching. Using the dataset provided, examine whether there is a statistically significant difference in exam scores between the two study methods. Apply an independent samples t-test and critically evaluate the results in terms of statistical significance, interpretation, and possible limitations.	4	4

Student	Self-Study Score	Coaching Score
1	62	72
2	65	75
3	67	78
4	63	74
5	66	76
6	64	79
7	68	77
8	61	73

2	The Reserve Bank of India publishes annual data on India's foreign exchange reserves, which play an important role in maintaining external stability. Using the dataset provided, fit a linear trend line to examine the movement of foreign exchange reserves over time. Interpret the estimated trend equation and evaluate whether the reserves show an increasing or decreasing trend during the period. Also, comment on the reliability of the trend based on the goodness of fit.	4	4

..2

Year	Forex Reserves (US$ Billion)
2014	304
2015	351
2016	363
2017	409
2018	412
2019	461
2020	476
2021	578
2022	563
2023	617

3	A retail firm collected quarterly sales data over a three-year period. Sales may fluctuate due to seasonal demand patterns across different quarters of the year. Using the provided dataset, estimate a dummy-variable regression model to examine seasonal variations in sales. Interpret the coefficients of the dummy variables and discuss how seasonal effects influence sales performance across quarters.	4	4

Year	Quarter	Sales (₹ '000)
2021	Q1	120
2021	Q2	135
2021	Q3	150
2021	Q4	180
2022	Q1	130
2022	Q2	145
2022	Q3	165
2022	Q4	195
2023	Q1	140
2023	Q2	155
2023	Q3	175
2023	Q4	210

To analyze seasonal effects, the researcher defines the following dummy variables:

D1 = 1 if Quarter = Q2, 0 otherwise

D2 = 1 if Quarter = Q3, 0 otherwise

D3 = 1 if Quarter = Q4, 0 otherwise

(Q1 is treated as the base category)

<table>
<tr><th>Q. No.</th><th>SECTION B
PART A (1 X 10 = 10)
Answer any ONE out of TWO questions</th><th>CO</th><th>KL</th></tr>
<tr><td>4.</td><td>A researcher collected data on monthly sales revenue (₹ ’000) of a retail firm along with advertising expenditure (₹ ’000) and the number of sales staffs over ten months. The objective is to examine how advertising and manpower influence sales performance. Using the dataset provided, compute the correlation coefficient between advertising expenditure and sales revenue. Interpret the strength and direction of the relationship and discuss whether a strong correlation necessarily implies causation.

<table>
<tr><th>Month</th><th>Advertising Expenditure (₹ ’000)</th><th>Sales Staff</th><th>Sales Revenue (₹ ’000)</th></tr>
<tr><td>1</td><td>20</td><td>8</td><td>210</td></tr>
<tr><td>2</td><td>25</td><td>9</td><td>230</td></tr>
<tr><td>3</td><td>28</td><td>10</td><td>250</td></tr>
<tr><td>4</td><td>30</td><td>10</td><td>265</td></tr>
<tr><td>5</td><td>32</td><td>11</td><td>275</td></tr>
<tr><td>6</td><td>35</td><td>11</td><td>290</td></tr>
<tr><td>7</td><td>38</td><td>12</td><td>305</td></tr>
<tr><td>8</td><td>40</td><td>12</td><td>320</td></tr>
<tr><td>9</td><td>42</td><td>13</td><td>335</td></tr>
<tr><td>10</td><td>45</td><td>14</td><td>355</td></tr>
</table>
</td><td>5</td><td>5</td></tr>
<tr><td>5</td><td>Using the dataset of Question Number (4), estimate a multiple regression model with sales revenue as the dependent variable and advertising expenditure and number of sales staff as independent variables. Interpret the estimated coefficients and evaluate how advertising and manpower influence sales performance.</td><td>5</td><td>5</td></tr>
</table>

<table>
<tr><th></th><th>SECTION B
PART B (1 X 10 = 10)
Answer any ONE out of TWO questions</th><th>CO</th><th>KL</th></tr>
<tr><td>6</td><td>A company collected data on employee productivity scores and job satisfaction levels across three departments: Production, Marketing, and Finance. The objective is to examine whether job satisfaction is associated with department and whether average productivity differs across departments. Using the provided dataset, apply the Chi-Square test of independence to examine whether job satisfaction is associated with employees' department. Interpret the results and discuss whether job satisfaction varies across departments.</td><td>6</td><td>6</td></tr>
</table>

Employee	Department	Productivity Score	Satisfaction
1	Production	78	Satisfied
2	Production	82	Satisfied
3	Production	80	Neutral
4	Production	85	Satisfied
5	Production	83	Dissatisfied
6	Marketing	72	Neutral
7	Marketing	75	Satisfied
8	Marketing	74	Neutral
9	Marketing	77	Satisfied
10	Marketing	76	Dissatisfied
11	Finance	68	Dissatisfied
12	Finance	70	Neutral
13	Finance	72	Neutral
14	Finance	69	Dissatisfied
15	Finance	71	Satisfied

7	Using the dataset, of question number (6) apply a one-way ANOVA to examine whether mean productivity scores differ significantly across the three departments. Interpret the results and discuss the implications for organizational performance.	**6**	**6**

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