



JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA

PGDM / PGDM (SM) / PGDM (M)

FOURTH TRIMESTER (Batch 2023-25) SET 1

END TERM EXAMINATION, OCTOBER 2023

Course Name	Marketing Analytics	Course Code	20125
Max. Time	2 Hours	Max. Marks	40 MM

INSTRUCTIONS:

- Attempt all questions
- Use of calculators is allowed

- One of the uses of conjoint analysis is being able to understand how customers make their decisions. It allows you to answer questions such as: When a customer is presented with products composed of several features, how do they prioritise? Which features do they see as the 'must haves' and which as the 'nice to haves'? Are there features they are willing to sacrifice? Which feature drives purchase and is linked to the price of the product.

A conjoint study was conducted by a firm to determine the role that five attributes play in influencing a consumer's preference for a vacuum cleaner. The five attributes and their levels are as follows:

Package design (either A, B or C)

- Brand (1,2 or3)
- Price (Rs 300, Rs 400, Rs 500)
- Did "Good Housekeeping" magazine approve product?
- Is product guaranteed?

The best prediction for the product is as follows:

$$\text{Predicted Rank} = 4.833 - 4.5*A + 3.5*B - 1.5*\text{Brand1} - 2*\text{Brand2} + 7.667*(\text{Rs } 300 \text{ Price}) + 4.83 *(\text{Rs } 400 \text{ Price}) + 1.5 *(\text{Approved?}) + 4.5 *(\text{Guarantee})$$

- Describe the steps involved in Conjoint analysis. (5 marks)
- Discuss the inferences that can be drawn by the firm's product manager from this equation for devising a pro-active marketing strategy? (5 marks)

2. Linear regression is not suitable for classification problem. Linear regression is unbounded, and this brings logistic regression into picture. Consider the age and income data of Netflix subscribers (0 = no subscription, 1 = subscription).

Subscribe	Age	Income
0	25	132
0	64	84
0	31	100
0	66	72
0	39	78
1	53	54
1	49	102

- a. Explain the theory and steps involved in logistic regression analysis. (8 marks)
 b. Interpret the output from this data, assuming that you are a marketing manager at Netflix? (7 marks)

	constant	age	income		
	3.231111	0.023059	0.015936		
Subscribe	Age	Income	Score	Prob	
3	0	25	132	0.55103	0.365624
6	0	64	84	-0.41668	0.39731
7	0	31	100	-0.92265	0.284419
8	0	66	72	-0.5618	0.36311
9	0	39	78	-1.08878	0.251849
10	1	53	54	1.14842	0.240777
11	1	49	102	-0.47571	0.383265
12	1	63	145	0.532377	0.630037
13	0	66	130	0.362508	0.589647
14	0	72	87	-0.1844	0.454029
15	0	35	89	-1.00571	0.26782
16	0	42	97	-0.71681	0.328096
17	1	65	90	-0.29801	0.426045
18	1	48	90	-0.69001	0.334031
19	0	28	67	1.51772	0.179797
20	0	46	98	-0.60864	0.352371
21	0	31	55	1.63978	0.162495
22	0	41	103	-0.64425	0.344287
23	0	57	128	0.123105	0.530737
24	0	70	72	-0.46957	0.384719
25	0	53	81	-0.71814	0.327802
26	0	49	134	0.034252	0.508562
27	1	51	142	0.207801	0.551779

3. Suppose that eight alternative types of a popular chocolate brand are described by the levels of the following attributes:

- Dark or milk
- Soft or chewy
- Nuts or no nuts

The eight resulting types of chocolate are listed here:

- Milk, chewy, no nuts
- Milk, chewy, nuts
- Milk, soft, no nuts
- Milk, soft, nuts
- Dark, chewy, no nuts
- Dark, chewy, nuts
- Dark, soft, no nuts
- Dark, soft, nuts

Ten people were asked which type of chocolate they preferred. (People were not allowed to choose none of the above.) The following results were obtained:

- Two people chose milk, chewy, nuts.
- Two people chose dark, chewy, no nuts.
- Five people chose dark, chewy, nuts.
- One person chose dark, soft, nuts.

		Dark	Milk	Soft	Chewy	Nuts	No Nuts
3							
4	weights		0	-1.38629458	2.401382	4.598606	5.923627529
5	number choosing						5.07633
6			exp(score)				
7	Score	milk chewy no nuts	8.288641	3978.42311		we set dark weight =0	
8	Score	milk chewy nuts	9.135939	9282.98697			
9	Score	milk soft nonuts	6.091417	442.047234			
10	Score	milk soft nuts	6.938715	1031.44351			
11	Score	dark chewy no nuts	9.674935	15913.6959			
12	Score	dark chewy nuts	10.52223	37131.9559		sum	
13	Score	dark soft nonuts	7.477711	1768.18932			-14.36349699
14	Score	dark soft nuts	8.325009	4125.77494	Number		
15	Prob	milk chewy no nuts	0.054		choosing		
16	Prob	milk chewy nuts	0.126	→	2		
17	Prob	milk soft nonuts	0.006		0		
18	Prob	milk soft nuts	0.014		0		
19	Prob	dark chewy no nuts	0.216	→	2		
20	Prob	dark chewy nuts	0.504	→	5		
21	Prob	dark soft nonuts	0.024	→	1		
22	Prob	dark soft nuts	0.056		0		
23		milk chewy no nuts					

- a. How can a brand manager use discrete choice analysis to determine the relative importance of the attributes and, within each attribute, rank the levels of the attributes? (8 marks)
- b. Explain the step by step process for discrete choice analysis (7 marks)