Jaipuria Institute of Management, Noida

PGDM/PGDM (M)/PGDM (S), 2016 – 2018; Term I Re – End term examination

Quantitative Analysis for Management – I (OP 101)

Time:- 2 Hours

Max Marks: 40

All questions are compulsory.

Q1. "Cool-Sundae" is an ice cream parlour in NCR. The sale of ice-cream scoops follows normal distribution with the average ice-cream consumption of 300 scoops per day and standard deviation of 40 scoops. What is the probability that on a given day, the ice cream consumption will be less than 230 scoops? More than 375 scoops? Between 321 and 357 scoops?

(10 Marks)

Q2. "Reader's Corner" is a famous book store in NCR. The store sells all type of books and has a large customer base. The management of Reader's Corner perceives that on an average, post graduates spend more money on purchase of books as compared to graduates who visit their store. In order to validate this claim, the management conducted a survey and the following results were obtained.

| | Graduates | Postgraduates | |
|---------------------------------|--------------|---------------|--|
| Mean Expenditure per month (Rs) | 551.4 | 1155.714286 | |
| Variance | 55830.26667 | 31248.52747 | |
| Observations | 10 | 14 | |
| Pooled Variance | 41304.69351 | | |
| Hypothesized Mean Difference | 0 | | |
| df | 22 | | |
| t Stat | -7.181605684 | | |
| P(T<=t) one-tail | 1.68682E-07 | | |
| t Critical one-tail | 1.717144374 | | |
| P(T<=t) two-tail | 3.37364E-07 | | |
| t Critical two-tail | 2.073873068 | 2 | |

t-Test: Two-Sample Assuming Equal Variances

State the null and alternate hypothesis and explain the output obtained. At α = 0.05, can Reader's Corner conclude that the perception is true? (10 Marks)

Q3. Write short notes on following: -

 $(5 \times 2 = 10 \text{ Marks})$

- a. Types of Correlation
- b. Probability Approaches

Q4. "La Imaginieca" is an entertainment and food joint near Mumbai. The outlet heavily depends on promotion of its theme outlet. The management of the mainly depends on two media promotion, TV and Print Media. The management of "La Imaginieca" has recently engaged a management consultant for prediction of the effectiveness of these two promotion media. The consultant has used a software and submitted the following report based on past data. Analyse the report, develop a prediction equation. Also suggest which method is more effective. Predict what will be the expected sales revenue if Rs 70 Lacs and Rs 84 Lacs are spent on TV and Print media respectively. (10 Marks)

Summary Output - La Imaginieca

| Regression Statistics | |
|--------------------------|------------|
| Multiple R | 0.81807947 |
| R Square | 0.66925402 |
| Adjusted R Square | 0.62515455 |
| Standard Error | 168.749086 |
| Observations | 18 |

ANOVA

| | df | SS | MS | F | Significance F |
|------------|----|-------------|---------|--------|-------------------|
| Regression | 2 | 864311.9674 | 432156 | 15.176 | 0.00024901 |
| Residual | 15 | 427143.8104 | 28476.3 | | er2013 |
| Total | 17 | 1291455.778 | | | |

| | Coefficients | Standard Error | t Stat | P-value | Lower 95% | Upper 95% | Lower 95.0% | Upper 95.0% |
|-------------|--------------|-------------------|---------|---------|------------|--------------|----------------|----------------|
| Intercept | 245.095748 | 166.0582979 | 1.47596 | 0.16064 | -108.84914 | 599.041 | -108.85 | 599.041 |
| TV (Lacs) | 11.7972085 | 2.490036616 | 4.73777 | 0.00026 | 6.48982111 | 17.1046 | 6.48982 | 17.10 |
| Print Media | | 1. M 1280. C.E. | | | | | | |
| (Lacs) | 15.506225 | 3.558866959 | 4.35707 | 0.00056 | 7.92067963 | 23.0918 | 7.92068 | 23.0918 |