GL BAJAJ
Institute of Management & Research
Approved by A.I.C.T.E., Ministry of HRD, Govt. of India

Plot No. 2, Knowledge Park-III, Greater Noida (U.P.)–201306

POST GRADUATE DIPLOMA IN MANAGEMENT (2017-19)
SUPPLEMENTARY EXAMINATION (TERM - I)

Subject Name: **Quantitative Techniques in Management**	Time: **02.00 hrs**
Sub. Code: **PG 04**	Max Marks: **100**

Note:

1. Writing anything except Roll Number on question paper will be deemed as an act of indulging in unfair means and action shall be taken as per rules.

2. All questions are compulsory in Section A, B & C. Section a carries 2 Case Studies, 10 marks each. Section B carries 2 questions of 10 marks each and Section C carries 5 questions 2 marks each.

SECTION - A   **20×02 = 40 Marks**

Q. 1: Case Study:

In its third year, attendance in the English Premier League averaged 16050 fans per game, and had a standard deviation of 2500.

   a) According to these data, what is the probability that the number of fans at any given game was greater than 20000?
   b) Fewer than 10000?
   c) Between 14000 and 17500?

Q.2: Case Study: Below data represent the overall miles per gallon (MPG) of 2016 SUV priced under $ 30000.

23	20	21	22	18	18	17	17	19	19	19
17	21	18	18	18	17	17	16	20	16	22

   a) Compute the mean median and mode.
   b) Compute the variance, standard deviation, range, coefficient of variation, and Z score.
   c) Are the data skewed? If so, how?

SECTION - B   **20×02 = 40 Marks**

Q. 3: How probability sampling is different from non probability sampling. Explain with suitable examples.

Q. 4: A) Describe what null hypothesis and alternate hypothesis typically represents in the hypothesis testing process.

B) The owner of "Pets Store" is interested in building a new store. Owner will build if the average number of animals sold during the first 6 months of 2016 is at least 300 and the overall monthly average for the year is at least 285. The data for the year 2016 are as follows:

Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
234	216	195	400	315	274	302	291	275	300	375	450

What is the owners decision and why?

SECTION - C   04×05 = 20 Marks

Q.5 (A): The administrator of a hospital has ordered a study of the amount of time a patient must wait before being treated by emergency room personnel. The following data were collected during a typical day.

Waiting Time (Minutes)

12	16	21	20	24	3	11	17	29	18
26	4	7	14	25	1	27	15	16	5

Arrange the data in an array from lowest to highest. Construct a frequency distribution using 6 classes. What additional interpretation can you give to the data from the frequency distribution?

Q. 5 (B): The term error in standard error of the mean, refers to what type of error?

Q. 5 (C): ABC Consulting has four types of professionals on its staff: managing consultants, senior associates, field staff and office staff. Average rate charged and the billing hours for each of these categories for the last year are as under:

Professionals	Billing (Hrs)	Rate ($)/hr
Managing consultants	8000	75
Senior associates,	14000	40
Field staff	24000	30
Office staff	35000	15

ABC Consulting is trying to come up with average billing rate for estimating client charges for the next year. What do you think is an appropriate rate?

Q. 5 (D): The head chef of the The Flying Taco has just received two dozen tomatoes from her supplier, but she is not ready to accept them. She knows from the invoice that the average weight of tomato is 7.5 ounce, but she insists that all be of uniform weight. She will accept them only if the average weight is 7.5 ounces and the standard deviation is less than 0.5 ounce. Here are the weight of the tomatoes:

6.3	7.2	7.3	8.1	7.8	6.8	7.5	7.8	7.2	7.5	8.1	8.2
8.0	7.4	7.6	7.7	7.6	7.4	7.5	8.4	7.4	7.6	6.2	7.4

What is the chef's decision and why?

Q. 5 (E): How descriptive statistics is different from inferential statistics?