Printed Page:- Subject Code:- BGPGDT103

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, NIET BUSINESS SCHOOL, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

PGDM (GLOBAL)

TRIMESTER: I - THEORY EXAMINATION (2024 -2025)

Subject: Business Statistics

Time: 2.5 Hours Max. Marks: 60

General Instructions:

IMP: *Verify that you have received the question paper with the correct course, code, branch etc.*

1. This Question paper comprises of three Sections -A, B, & C. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.

2. Maximum marks for each question are indicated on right -hand side of each question.

3. Illustrate your answers with neat sketches wherever necessary.

4. Assume suitable data if necessary.

5. Preferably, write the answers in sequential order.

6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION-A 15

1. Attempt all parts:-

1-a. The algebraic sum of the deviations from mean is(CO1,K1) 1

(a) zero
(b) Maximum
(c) Mimimum
(d) None of these

1-b. Which of the following is type of correlation(CO2,K1) 1

(a) Positive Correlation
(b) Negative correlation
(c) Perfect correlation
(d) All of the above

1-c. Four person are chosen at random from a group containing 3 men, 2 women and 4 children then the probability that exactly two of them will be children is.(CO3,K2) 1

(a) 4/5
(b) 10/21
(c) 7/21
(d) 5/21

1-d. Which is true for binomial distribution (CO4,K2) 1

(a) Mean is greater than variance

(b) Mean is less than variance

(c) mean = variance

(d) All of the above

1-e. Which of the following cannot be a component for a time series plot.(CO5,K3) 1

(a) Seasonality

(b) *Irregularity*

(c) Cyclical

(d) Noise

2. Attempt all parts:-

2.a. Give difference between a mean and a median. (CO1,K1) 2

2.b. Write the interpretation of the *Y* intercept and the slope in the simple linear regression equation.(CO2,K1) 2

2.c. Give Addition theorem of probability. (CO3,K2) 2

2.d. Define Binomial distribution. .(CO4,K2) 2

2.e. Define Time Series. (CO5,K3) 2

SECTION-B 15

3. Answer any three of the following:-

3-a. You are given the daily profits of 100 shops in a market located in one of the villages of Agra 5

Profit per Shop	0-10	10-20	20-30	30-40	40-50	50-60
No. of Shops	12	18	27	20	17	6

Calculate Mode and Median. (CO1,K1)

3-b. 5

The following results were obtained from record of age *x* and blood pressure *y* of a group of 10 men:

	x	*y*
Mean	53	142
Variance	130	165

and $\sum(x-\bar{x})(y-\bar{y})=1220$

Find the appropriate regression equation and use it to estimate the blood pressure of a man whose age is 45.(CO2,K1)

3.c. If 40% of boys opted for maths and 60% of girls opted for maths, then calculate the probability that maths is chosen if half of the class's population is girls(CO3,K2) 5

3.d. find the moment generating function of the discrete binomial distribution given by $P(x)=nC_x p$ 5

$^{x}q^{n-x}$ where $q=1-p$(CO4,K2)

3.e. "Index Numbers are devices for measuring changes in the magnitude of a group of related variables". Discuss this statement and point out the important uses of index numbers. (CO5,K3) 5

SECTION-C 30

4. Answer any one of the following:-

4-a. Define measures of dispersion, Discuss the standard deviation considered to be most reliable measure of dispersion, Calculate standard deviation of the following data.(CO1,K1) 6

Age in years	4-6	6-8	8-10	10-12	12-14	14-16	16-18	18-
Student	30	40	50	60	40	30	20	10

4-b. Find out missing frequencies in the following incomplete distribution-(CO1,K1) 6

Class interval	0 – 10	10 – 20	20 – 30	30 - 40	40- 50
Frequency	3	-	20	12	-

.*The value of median and mode are 27 and 26 respectively.*

5. Answer any one of the following:-

5-a. The equation of two regression lines in a correlation analysis are as follows: 6
3X+2Y=26
6X+Y=31
A student obtains the mean value (7, 4) and the value of correlation coefficient r=0.5, you agree with him. If not, suggest your results(CO2,K1).

5-b. If the coefficient of correlation between two variables *x* and *y* is 0.5 and the acute angle between their lines of regression is tan-*135*. show that $\sigma_x=\sigma_y^2$. (CO2,K1) 6

6. Answer any one of the following:-

6-a. Explain what you understand by the term 'probability. Give the concept of probability is relevant to decision making under uncertainty.(CO3,K2) 6

6-b. State and prove Baye's Theorem.(CO3,K2) 6

7. Answer any one of the following:-

7-a. Assuming the probability of male birth as ½, find the probability distribution of number of boys out of 5 births. Find the probability that a family of 5 children have(CO4,K2) 6

(i) at least one boy
(ii) at most 3 boys

7-b. Define probability. Explain the calculation of probability under the classical approach. (CO4,K2) 6

8. Answer any one of the following:-

8-a. Write Paache's ideal formula for preparing index number. Explain. it satisfy the time reversal test and factor reversal test. (CO5,K3) 6

8-b. Fit a straight-line trend for the following data of a company by the method of least 6

squares and tabulate the trend values and also estimate the sale in 2006. .(CO5,K3)

Year	2000	2001	2002	2003	2004
Sales (Rs lakhs)	*50*	80	100	200	160