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2301N1058

Candidate's Seat No :_____

MBA in BEPF/PP/EM Sem.-1 Examination

EPF-108

BE

Time : 2-30 Hours] **January-2025** **[Max. Marks : 70**

Q1 The blood pressure of a person depends on the age of a person and the weight of a person. The sample value of seven persons is given below: (14)

Blood Pressure (Y)	162	154	168	128	140	132	160
Age (in Yrs) x_1	70	60	75	48	62	54	72
Weight (in pounds) x_2	215	196	220	172	180	185	210

A) Obtain a regression equation of y on x_1 and x_2.
B) Estimate the blood pressure of person having age 82 years and weight 130 pounds.

Q2 Fit a Poisson distribution to the following data and test the goodness of fit. (14)

X	0	1	2	3	4	5	6
f	275	72	30	7	5	2	1

Or

Q2 Find KP's and Bowley's coefficient of skewness (14)

Class	0-2	2-5	5-10	10-15	15-25	25-35	35-50
f	10	14	20	15	10	11	10

Q3 A company wants to predict the monthly sales (Y, in thousands of dollars) based on advertising expenditure (X, in thousands of dollars). The following data was collected: (14)

Advertising (X)	Sales (Y)
2	7
3	9
5	10
6	12
8	15

a) Calculate the standard error of the estimate.
b) Obtain R square for the model fitted and comment on its value.
c) Test the hypothesis that the slope is zero against it is not zero using ANOVA method. (F tab = 7.70)
d) Construct 95% confidence interval for the slope. (t tab= 2.132)

Or

(P.T.O)

Q3 A farmer wants to understand the relationship between the amount of fertilizer used (X, in kilograms) and the crop yield (Y, in tons). The following data is collected: (14)

Fertilizer (X)	Yield (Y)
10	25
15	35
20	45
25	40
30	50

A) Fit the regression equation.
C) Compute the coefficient of determination (R^2) and interpret it.
D) Construct a 99% confidence interval for the slope (b). (t=1.533)
E) Predict the crop yield if 35 kg of fertilizer is used.

Q4 An educational institute wants to predict the final exam scores (Y) of students based on the number of study hours (X_1) and the number of class lectures attended (X_2). The data collected is: (14)

Final Exam Scores	Study Hours	Lectures Attended
85	10	8
90	12	9
88	11	10
92	13	11
95	15	12

A) Fit the regression model using the matrix method.
B) Predict the final exam score for a student who studied for 14 hours and attended 10 lectures.

Or

Q4 What is Multiple regression? Explain its assumptions. Explain how the coefficient of determination is calculated from the multiple regression analysis. (14)

Q5 Explain the following: (14)

a) Bernoulli Trial
b) Continuous Distribution
c) Homoscedasticity
d) Skewness
e) Multicollinearity
f) Mesokurtic Curve
g) Level of Significance