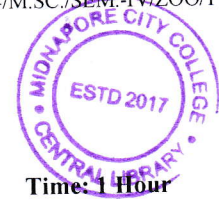


PG (CBCS)
M.SC. Semester- IV Examination, 2026
ZOOLOGY
 PAPER: ZOO 402
(BIOSTATISTICS)



Full Marks: 20

Time: 1 Hour

The figures in the right-hand margin indicate full marks.
 Candidates are required to give their answers in their own words as far as practicable.

GROUP-AAnswer any **TWO** of the following questions: 2×2=4

1. Given that the mean of 16, w , 17, 9, x , 2, y , 7 and z is 11, find the mean of w , x , y and z .
2. Find the value of q from the following data, if mean is 36.

Marks	10	20	38	40	50
No. of students	1	2	q	2	3

3. What do you mean by Type I and Type II errors?
4. What is regression coefficient? Write the formula for computing regression coefficient.

GROUP-BAnswer any **TWO** of the following questions: 2×4=8

5. The trait for smooth peas (R) is dominant over wrinkled peas (r) and yellow pea colour (Y) is dominant to green (y). A dihybrid cross between two heterozygous pea plants is performed ($RrYy \times RrYy$). The following phenotypic frequencies are observed: 701 smooth yellow peas; 204 smooth green peas; 243 wrinkled yellow peas; 68 wrinkled green peas. Test the goodness of fit of these data, using the chi-square test considering probability at 5% level. ($p(3)0.05 = 7.815$)

6. Given the data for two variables X and Y -

X	Y
6	12
8	10
10	20

Calculate the Pearson correlation coefficient and interpret the result.

7. In a group 123 students the product moment r values between intelligence score (X_1), motor test score (X_2) and age (X_3) were noted as follows: $r_{12}=+0.45$, $r_{13}=+0.30$ and $r_{23}=+0.15$. Compute the partial correlation coefficient between intelligence score and motor score eliminating the effect of age.
8. What do you mean by negative correlation? The correlation coefficient between gill weight and body weight of sample of 10 crabs was +7.9. Find whether the correlation between them was significant or not. [Given Critical $_{0.01(8)} = 3.335$]

(P.T.O.)

(2)

GROUP-CAnswer any **ONE** of the following questions:

1×8=8

9. What do you mean by multiple comparison test in case of anova? What is Scheff's F test? In an experiment blood sugar levels of three groups of subjects were estimated. Each group contained 10 subjects each. Apply Scheff's F test to find whether there was significant difference in blood sugar level between group 1 and group 2. The following results were obtained after computing anova (F test): Mean of three groups (mg/dL): Group 1= 126.0 Group 2= 118.0 Group 3= 89.0. Variance within the groups (S_w^2)= 46.5 [Given: critical $F_{0.05} = 3.35$].

2+2+4

10. Suppose we have the following dataset that shows the weight and height of seven individuals:

Weight (lbs)	Height (inches)
140	60
155	62
159	67
179	70
192	71
200	72
212	75

Find 'a' and 'b' using linear regression model ($y = a + bx$) to this dataset, using weight as the predictor (independent) variable and height as the response (dependent) variable.

