MAULANA AZAD NATIONAL INSTITUTE OF TECHNOLOGY, BHOPAL
DEPARTMENT OF MCB
Mid Term Exam (October, 2021)

Class: MCA **Subject: Statistics & Probability** **Code: CA-301**

Time: 9:30 AM to 11:00 AM **Max. Marks: 20**

Note: Answer all Questions.

Q1 (04)

The regression equations of two variables x and y are $x = 0.7y + 5.2$ and $y = 0.3x + 2.8$. Find the means of the variables and the coefficient of correlation between them.

Q2 (05)

The yields of four blocks are given below:

Varieties	Blocks		
	1	2	3
A	10	9	8
B	7	7	6
C	8	5	5
D	5	4	4

Is the difference between varieties significant? [Given: $F_{3,6}(0.5) = 4.76$].

Q3 (04)

Of a large number of group of children 5% are under 60 cm in height and 40% are between 60 and 65 cm. Assuming a normal distribution, find the mean height and standard deviation. Given that

$$\phi(z) = \int_0^z f(z)\,dz, \quad \phi(1.64) = 0.45 \quad \phi(0.13) = 0.05$$

Q4 (03)

In a rat feeding experiment , the following results were obtained

Diet	Gain in weight in gm											
High Protein	13	14	10	11	12	16	10	8	11	12	9	12
Low Protein	7	11	10	8	10	13	9	-	-	-	-	-

Investigate if there is any evidence of superiority of one diet over the other. Given that

$\nu = 17,\ P = 0.05, t_{tab} = 2.11,$

Q.5 (04)

5 dice were thrown 96 times and a throw of 6 was reported as a success , the observed frequency were as

No of dice throwing 6	0	1	2	3	4	5
Frequency	3	8	24	35	19	7

Test the hypothesis that the dice were unbiased?

Given that $\nu = 5,\ P = 0.05, \chi^2_{tab} = 11.07$