



QUESTION PAPER

Name of the Examination: Fall 2023-24 Semester – CAT-2

Course Code: MAT 1011

Course Title: Applied Statistics

Set number: 05

Date of Exam: 19/10/2023 (An)(E)

Duration: 90 min

Total Marks: 50

Instructions:

1. Any assumptions made should be clearly stated.
2. Students are allowed to use Normal distribution tables and t-table endorsed by CoE.

Q1

The average number of acres burned by forest and range fires in a large New Mexico county is 4,300 acres per year, with a standard deviation of 750 acres. The distribution of the number of acres burned is normal. What is the probability that between 2,500 and 4,200 acres will be burned in any given year?

Marks 10

Q2

Find the correlation coefficient for below data for adjacent image pixels (X and Y) and find the regression equation of Y on X .

X	10	12	16	11	15	14	20	22
Y	15	18	23	14	20	17	25	28

Marks 20

Q3

Suppose the courage of psychologists has a population that is normally distributed with a standard deviation of 10. You decide to sample 57 psychologists from this population and obtain a mean courage of 34.81 and a standard deviation of 9.0579. Using an alpha value of $\alpha = 0.05$. Is this observed mean significantly greater than an expected courage of 34?

Marks 10**Q4**

A visual research lab has purchased a digital colour blindness test from a company. Before they can use the test in their research, they must ensure it is properly calibrated. To do this they must check that they get the same results as the company when testing participants with no colour deficiencies. The company states that participants with healthy colour vision will score 15 on the test on average. The research lab tests 13 participants with healthy colour vision. On average they score 12 with a standard deviation of 3.6. Is their machine properly calibrated?

Marks 10**QP MAPPING**

Q. No.	Module Number	CO Mapped	PO Mapped	PEO Mapped	PSO Mapped	Marks
Q1	3	3	1			10
Q2	4	4	3			20
Q3	5	5	1			10
Q4	5	5	2			10



VIT-AP
UNIVERSITY
Apply Knowledge. Improve Life!®

QUESTION PAPER

Name of the Examination: Fall 2023-24 Semester – CAT-2

Course Code: MAT 1011

Course Title: Applied Statistics

Set number: 06

Date of Exam: 17/10/2023 (Am) (C2)

Duration: 90 min

Total Marks: 50

Instructions:

1. Any assumptions made should be clearly stated.
2. Students are allowed to use Normal distribution tables and t-table endorsed by CoE.

Q1

The length of human pregnancies from conception to birth approximates a normal distribution with a mean of 266 days and a standard deviation of 16 days. What proportion of all pregnancies will last between 240 and 270 days (roughly between 8 and 9 months)?

Marks 10

Q2

Find Karl Pearson's coefficient of correlation between capital employed and profit obtained from the following data and find the equation of true regression line.

Capital Employed (Rs. In Crore)	10	20	30	40	50	60	70	80	90	100
Profit (Rs. In Crore)	2	4	8	5	10	15	14	20	22	50

Marks 20

Q3

Suppose the arousal of hot cats has a population that is normally distributed with a standard deviation of 6. Tomorrow you sample 40 hot cats from this population and obtain a mean arousal of 46.44 and a standard deviation of 5.6968. Using an alpha value of $\alpha = 0.01$, is this observed mean significantly less than the expected arousal of 47?

Marks 10

Q4

Suppose the jewellery of exams has a population that is normally distributed with a standard deviation of 5. You are walking down the street and sample 9 exams from this population and obtain a mean jewellery of 28.95 and a standard deviation of 6.3802. Using an alpha value of $\alpha = 0.01$, is this observed mean significantly different than expected jewellery of 27?

Marks 10

QP MAPPING

Q. No.	Module Number	CO Mapped	PO Mapped	PEO Mapped	PSO Mapped	Marks
Q1	3	3	1			10
Q2	4	4	3			20
Q3	5	5	1			10
Q4	5	5	2			10