

	Final-term EXAMINATION SEMESTER Fall 2004 STA-301 Statistics and probability(Paper-1)	Total Marks:50 Duration:120min
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Student ID / Login ID.	
Name.	
PVC Name /Code	
Date	

Maximum Time Allowed: (2 Hours)

Please read the following instructions carefully before attempting any of the questions:

1. Attempt all questions. Marks are written adjacent to each question.
2. Do not ask any questions about the contents of this examination from anyone.
 - a. If you think that there is something wrong with any of the questions, attempt it to the best of your understanding.
 - b. If you believe that some essential piece of information is missing, make an appropriate assumption and use it to solve the problem.
 - c. Write all steps, missing steps may lead to deduction of marks.
3. You are allowed to use the calculator & Statistical tables in order to solve the questions. For your convenience we are providing you the following symbols,

$$\sum_{n=0}^{\infty} \frac{1}{n!} \bar{x}^n \cdot t_{a/2}^{a/2} \cdot t_{a/2}^{a/2} \cdot \beta_1 \cdot \beta_2 \cdot \frac{\alpha_1 \alpha_2 \alpha_3 \alpha_4}{1! 2! 3!} \cdot \frac{2}{2!} \cdot \frac{2}{3!} \cdot \frac{2}{4!} \cdot \sum x_i \cdot \sum y_j \cdot \sum x_i y_j \cdot x^2 \cdot y^2 \cdot \int_{-\infty}^{+\infty}$$

****WARNING: Please note that Virtual University takes serious note of unfair means.**

Anyone found involved in cheating will get an 'F' grade in this course.

For Teacher's use only

Questions	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Marks								
Questions	Q9	Q10	Q11	Total				
Marks								

Question No: 1

Marks:1

If mean=median=mode then curve is symmetrical

- ☐ True
☐ False

Question No: 2

Marks:1

Distribution Function is also called the step function

- ☐ True
☐ False

Question No: 3

Marks:1

In the case of sampling with replacement as well as in the case of sampling without replacement, we have:

$$\mu_{\bar{x}} = \mu$$

- ☐ True
☐ False

Question No: 4

Marks:1

The rejection region is also called the critical region.

- ☐ True
☐ False

Question No: 5

Marks:4

Describe the continuous and discrete random variable with example.

Question No: 6

Marks:4

Define and describe the Least Significance Difference (LSD).

Question No: 7

Marks:4

Write down the properties of normal distribution

Question No: 8

Marks:4

Discuss on null and alternative hypothesis.

Question No: 9

Marks:10

Following is given the data of Traffic Density and Accident rate.

Traffic Density	30	35	40	45	50	60	70	80	90
Accident rate	2	4	5	5	8	15	24	30	32

a. Plot the data on scatter

dia-gram

b. Calculate the correlation co-efficient between traffic density and accident rate

c. Interpret the correlation.

Question No: 10

Marks:10

A continuous random variable X that can assume values between $x=1$ and $x=4$ has a density function given

$$f_X(x) = \frac{1}{3}$$

a. Show that the area under the curve is equal to

b. Find $p(1.5 < X < 3)$

c. $P(X \geq 2.2)$

Question No: 11

Marks:10

Let X and Y be two discrete r.vs with the following joint p.d.

$\begin{matrix} x \\ y \end{matrix}$	2	4
1	0.1	0.15
3	0.2	0.30
5	0.1	0.15

Find EX and EY .