INTERNAL ASSIGNMENT QUESTIONS
M.Sc. (STATISTICS) PREVIOUS
YEAR WISE (OLD PATTERN) BACKLOG

2025

PROF. G. RAM REDDY CENTRE FOR DISTANCE EDUCATION

(RECOGNISED BY THE DISTANCE EDUCATION BUREAU, UGC, NEW DELHI)

OSMANIA UNIVERSITY

(A University with Potential for Excellence and Re-Accredited by NAAC with "A" + Grade)

DIRECTOR

Prof. G.B. REDDY

Hyderabad – 7 Telangana State

PROF.G.RAM REDDY CENTRE FOR DISTANCE EDUCATION
OSMANIA UNIVERSITY, HYDERABAD – 500 007

Dear Students,

Every student of M.Sc. Statistics Previous Year (Year wise) has to write and submit **Assignment** for each paper compulsorily. Each assignment carries **20 marks.** The marks awarded to the students will be forwarded to the Examination Branch, OU for inclusion in the marks memo. If the student fail to submit Internal Assignments before the stipulated date, the internal marks will not be added in the final marks memo under any circumstances. The assignments will not be accepted after the stipulated date. **Candidates should submit assignments only in the academic year in which the examination fee is paid for the examination for the first time.**

Candidates are required to submit the Exam fee receipt along with the assignment answers scripts at the concerned counter on or before **15-05-2025** and obtain proper submission receipt.

ASSIGNMENT WITHOUT EXAMINATION FEE PAYMENT RECEIPT (ONLINE) WILL NOT BE ACCEPTED

Assignments on Printed / Photocopy / Typed will not be accepted and will not be valued at any cost. Only HAND WRITTEN ASSIGNMENTS will be accepted and valued.

Students are advised not use Black Pen.

Methodology for writing the Assignments (Instructions) :

1. First read the subject matter in the course material that is supplied to you.
2. If possible read the subject matter in the books suggested for further reading.
3. You are welcome to use the PGRRCDE Library on all working days for collecting information on the topic of your assignments. (10.30 am to 5.00 pm).
4. Give a final reading to the answer you have written and see whether you can delete unimportant or repetitive words.
5. The cover page of the each theory assignments must have information as given in FORMAT below.

FORMAT

1. NAME OF THE STUDENT :
2. ENROLLMENT NUMBER :
3. NAME OF THE COURSE :
4. NAME OF THE PAPER :
5. DATE OF SUBMISSION :

6. Write the above said details clearly on every subject assignments paper, otherwise your paper will not be valued.
7. Tag all the assignments paper wise and submit them in the concerned counter.
8. Submit the assignments on or before **15-05-2025** at the concerned counter at PGRRCDE, OU on any working day and obtain receipt.

DIRECTOR

FACULTY OF SCIENCE
M.Sc. PREVIOUS : ASSIGNMENT - 2025
SUBJECT : STATISTICS
Paper-I : MATHEMATICAL ANALYSIS & LINEAR ALGEBRA

(Answer the following questions in the order only)

SECTION-A (5 x 2 = 10 Marks)

1. State Cauchy Residue theorem.
2. Define removable discontinuity.
3. State Riemann-Steiltjes (R-S) Integral and its linear properties
4. Compute the norm of [3,-1,-2,1]
5. Find a vector orthogonal to [2,2,0]

SECTION-B (2 x 5 =10 Marks)

6. State and prove Generalized mean value theorem

7. If f: R→R is defined as $f(x) = \begin{cases} x\sin\frac{1}{x}; if\ x \neq 0 \\ 0; if\ x = 0 \end{cases}$ then show that f is continuous but not differentiable at $x = 0$.

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FACULTY OF SCIENCE
M.Sc. I Year : APRIL 2025
CDE ASSIGNMENT QUESTIONS
SUBJECT: STATISTICS
PAPER- II: PROBABILITY THEORY

(Answer the following questions in the order only)

SECTION-A (5 x 2 = 10 Marks)

1. Define distribution function and state its properties.
2. Define the mode of convergence in probability.
3. Obtain the characteristic function of Normal distribution.
4. State Kolmogorovs SLLN's and Kolmogorovs inequality.
5. If $P\left[X_k = \pm\sqrt{\log k}\right] = \frac{1}{2}$; k=1,2,3,...n then obtain V(X_k).

SECTION-B (2 x 5 =10 Marks)

6. State and prove Borels Strong Law of Large Number's.
7. State and prove Holders inequality. Write any four of its applications / uses in statistical theory.

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FACULTY OF SCIENCE
M.Sc. I Year : APRIL 2025
CDE ASSIGNMENT QUESTIONS
SUBJECT: STATISTICS
PAPER- III: DISTRIBUTION THEORY & MULTIVARIATE ANALYSIS

(Answer the following questions in the order only)

SECTION-A (5 x 2 = 10 Marks)

1. Define order statistics and give its applications
2. Define non-central t- and F- distributions
3. Find the distribution of ratio of two chi-square variates in the form X/(X+Y)
4. State the Properties of Wishart distribution.
5. Define Canonical variables and canonical correlations

SECTION-B (2 x 5 =10 Marks)

6. Define Pareto distribution and derive its median. List out four real life applications.
7. Explain the procedure for obtaining the Principal components. List out four real life applications.

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P.T.O.

FACULTY OF SCIENCE
M.Sc. I Year : MARCH 2025
CDE ASSIGNMENT QUESTIONS
SUBJECT: STATISTICS
PAPER IV: Sampling Theory & Theory of Estimation

(Answer the following questions in the order only)

SECTION-A (5 x 2 = 10 Marks)

1. Define ratio estimator and regression estimator.
2. Define cluster sampling and two –stage sampling . Give an example for each.
3. What is cluster sampling. Give an example.
4. Name the methods of constructing nonparametric density estimators.
5. Define the Generalized Jackknife estimator.

SECTION-B (2 x 5 =10 Marks)

6. Explain the procedures of drawing the samples through ppswor and ppswr. Give their applications.
7. State the criteria for a good estimator. If $X_1, X_2, \ldots X_n \sim N(\mu,\sigma^2)$ then obtain a unbiased and consistent estimator for the parameter μ.

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