INTERNAL ASSIGNMENT QUESTIONS
M.Sc. (STATISTICS) SEMESTER-III

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

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

Dear Students,

Every student of M.Sc. (Statistics) Semester III has to write and submit **Assignment** for each paper compulsorily. Each assignment carries **30 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 fee only remaining Examination fee pay to Examination Branch, OU, after notification separately to be issued.**

Candidates are required to submit the Assignment fee receipt of Rs.500/- along with the assignment answers scripts at the concerned counter on or before **25-10-2025** and obtain proper submission receipt.

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 to use Blue Pen only.

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 **25-10-2025** at the concerned counter at PGRRCDE, OU on any working day and obtain receipt.

DIRECTOR

M.Sc. Statistics III-Semester

INTERNAL ASSESSMENT

Paper-I: Operations Research-I (OR-I)

Section – A

Answer the following short questions (each question carries two marks) 5x2=10

1. Show that optimal solution is existing at the extreme points of a convex set region?
2. State the rules for marking in Hungarian method to solve Assignment problem and illustrate with an example?
3. Compare and contrast PERT and CPM methods?
4. Compare and contrast primal with its dual?
5. Explain ABC analysis and its interpretation?

Section – B

Answer the following Questions (each question carries Ten marks) 2x10=20

6. Discuss in detail the various linear programming problem solving methods applicability, limitations, and their basic concepts of introducing.
7. Write an algorithm with its conditions to find optimal solution to the Job sequencing problem with N jobs on three machines. Also find the optimal solution to the following problem.

M.Sc. Statistics III-Semester

INTERNAL ASSESSMENT

Paper-II: Applied Regression Models (ARM)

Section – A

Answer the following short questions (each question carries two marks) 5x2=10

1. Define R^2, Adjusted R^2, MSE, lack of fit of the model?
2. State the commonly used families of non-linear regression functions?
3. Explain the fitting of a Probit model with a suitable example?
4. Explain the gauss Newton method?
5. Explain the L1 Regression?

Section – B

Answer the following Questions (each question carries Ten marks) 2x10=20

6. Explain the All-Possible regression method to find best linear regression with suitable example.
7. Explain Logistic regression model fitting for a dichotomous data?

M.Sc. Statistics III-Semester

INTERNAL ASSESSMENT

Paper-III: Time Series Analysis (TSA)

Section – A

Answer the following short questions (each question carries two marks) 5x2=10

1. How can you examine the stationarity using Autocovariance? Illustrate with a suitable example?
2. State and define the three explicit forms of ARIMA Model
3. Explain the stages in the identification of nonstationary stochastic model.
4. What is spectral function of a stationary process? Write its importance?
5. Describe the time series model identification procedure using ACF and PACF?

Section – B

Answer the following Questions (each question carries Ten marks) 2x10=20

6. Define Auto Regressive Model of order p. Derive the ML estimator of variance of AR(p) model. write the model for p=1,2. Explain model and writs its significance.
7. How can you identify the time series model for the data using Auto and partial auto-correlation functions?

M.Sc. Statistics III-Semester

INTERNAL ASSESSMENT

Paper-IV: Statistical Quality Control (SQC)

Section – A

Answer the following short questions (each question carries two marks) 5x2=10

1. Explain what is the purpose of modified control charts and write its importance and need?
2. Explain the construction of CUSUM charts by V-mask procedure? How is it designed?
3. State and define various capability indices? Also write their purpose?
4. Outline the difference between Moving average control chart and Shewhart's control chart for mean
5. Describe Single sampling plan procedure?

Section – B

Answer the following Questions (each question carries Ten marks) 2x10=20

6. Define OC and ARL functions. Derive the same for chart for number of defectives.
7. Define Single and Double sampling plans and their procedures? Also write their merits and demerits?