INTERNAL ASSIGNMENT QUESTIONS M.Sc. (STATISTICS) FINAL 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 Final 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 <u>03-06-2025</u> 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 <u>HAND WRITTEN ASSIGNMENTS</u> 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.

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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 **03-06-2025** at the concerned counter at PGRRCDE, OU on any working day and obtain receipt.

FACULTY OF SCIENCE M.Sc. FINAL : ASSIGNMENT - 2025 SUBJECT : STATISTICS Paper-I : STATISTICAL INFERENCE

(Answer the following questions in the order only)

SECTION-A ($5 \times 2 = 10$ Marks)

E Distinguish between MP and UMP tests.

Write the steps in SPRT procedure

 \sim Define Run and give the steps involved in a run test to test for randomness

What is the role of confidence interval in testing of hypothesis?

Define Mann Whitney U statistic and write the assumptions involved in applying the test.

<u>SECTION-B (2 x 5 =10 Marks)</u>

State and prove Neymann Pearson Lemma.

7. Let X_1, X_2, \ldots, X_n be an iid random sample drawn from Poisson population with parameter λ . Derive OC and ASN function associated with the SPRT of size α for testing $H_0: \lambda = \lambda_0$ against $H_1: \lambda = \lambda_1(>\lambda_0)$.

FACULTY OF SCIENCE M.Sc. FINAL : ASSIGNMENT - 2025 SUBJECT : STATISTICS Paper-II : LINEAR MODELS AND DESIGN OF EXPERIMENTS

(Answer the following questions in the order only)

SECTION-A ($5 \times 2 = 10$ Marks)

- 1. Distinguish between multi collinearity and multiple correlation?
- 2. What is (i) Contrast and (ii) confounding?
- 3. Distinguish between BIBD and PBIBD?
- 4. State gauss markoff theorm.
- 5. Write ANOVA table of RBD with one missing observation?

SECTION-B (2 x 5 =10 Marks)

- 6. Linear models can be classified based on how many criterion and what are they? When do we use Generalized least squares method? Show that BLUE of $\lambda'\beta$ is unbiased.
- 7. Give the layout of a 2³ factorial experiment with factors A and B. Write the ANOVA table of this experiment with 'r' replicates.

FACULTY OF SCIENCE M.Sc. FINAL : ASSIGNMENT - 2025 SUBJECT : STATISTICS Paper-III : OPERATIONS RESEARCH

(Answer the following questions in the order only)

SECTION-A ($5 \times 2 = 10$ Marks)

- Define primal and dual problems. If the Primal problem is: Max. $Z = 4x_1 + 2x_2$; STC $x_1+x_2 \ge 3$, $x_1-x_2 \le 2$ and $x_1, x_2 \ge 0$ then obtain its Dual problem.
- Explain the need for Integer programming problem and give two of its applications.

Obtain saddle point and value to the following game		\mathbf{B}_1	\mathbf{B}_2	B ₃	\mathbf{B}_4	\mathbf{B}_{5}
1	A_1	9	3	1	8	0
	A_2	6	5	4	6	.7
	A ₃	2	4	4	3	8
	A_4	5	6	2	2	1

What are the various costs involved in an inventory model.?

 \pm Define queue. Explain briefly about the notation (M/M/1): (∞ /FIFO)

SECTION-B (2 x 5 =10 Marks)

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• Define Goal programming problem and explain the formulation of single goal programming problem with an example.

7. Give the methodology to obtain critical path by PERT along with its merits and demerits.

FACULTY OF SCIENCE M.Sc. FINAL : ASSIGNMENT - 2025 SUBJECT : STATISTICS Paper-IV : TIME SERIES ANALYSIS & STATISTICAL PROCESS & QUALITY CONTROL

(Answer the following questions in the order only)

SECTION-A ($5 \times 2 = 10$ Marks)

- 1. Explain the EWMA control chart.
- 2. Derive the OC function of the sequential sampling plan.
- 3. Describe Continuous sampling plan-1.
- 4. Explain auto-regressive and moving average process.
- 5. Explain standard error of auto-correlation estimates.

SECTION-B (2 x 5 =10 Marks)

6. Define the process capability ratio and explain the terms Cp, Cpk, Cpm.

7. Explain the relationships between the π weights and ψ weights.
