

INTERNAL ASSIGNMENT QUESTIONS
B.A.(Maths & Stats) II YEAR

SUPPLEMENTARY - 2025



PROF. G. RAM REDDY CENTRE FOR DISTANCE EDUCATION
(RECOGNISED BY THE DISTANCE EDUCATION BUREAU, UGC, NEW DELHI)

OSMANIA UNIVERSITY

(A University Accredited with A+ by the NAAC - A University with Potential for Excellence,
Hyderabad – 7 Telangana State)

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Prof. N.Ch. Bhatracharyulu
Hyderabad – 7, Telangana State

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

Dear Students,

Every student of B.A. (Maths & Stats) II year has to write and submit **Assignment** for each paper compulsorily. ***Statistics Assignment papers carries 20 marks and *Maths & Applied Mathematics Assignment papers 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.**

NOTE: THE SUPPLEMENTRY CANDIDATES PAYING THEIR EXAMINATION FEE FOR THE FIRST TIME ARE ONLY ELGIBLE TO WRITE AND SUBMIT THEIR ASSIGNMENTS. THE CANDIDATES WHO PAID EXAMINATION FEE EARLIER AND NOT SUBMITTED THEIR ASSIGNMENT ARE NOT ELIGIBLE TO SUBMIT THEIR ASSIGNMENTS NOW.

Candidates are required to submit the Exam fee receipt along with the assignment answers scripts at the concerned counter on or before **15-11-2025** and obtain proper submisssion recelpt.

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

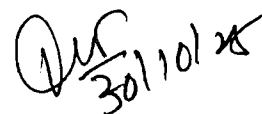
Assignments on Printed / Photocopy / Typed will not be accepted and will not be valued at any cost. Only HAND WRITTEN ASSIGNMENTS with blue pen will be accepted and valued.

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 **15-11-2025** at the concerned counter at PGRRCDE, OU on any working day and obtain receipt.


(DIRECTOR)

INTERNAL ASSIGNMENT QUESTION PAPER -

COURSE : B.A.(Maths & Applied Maths) II year

Paper : II Subject : Statistical Methods Year and Inference

Total Marks: 30

Section - A

UNIT - I : Answer the following short questions (each question carries three marks) $5 \times 3 = 15$

- 1 Define partial and Multiple Correlation Coefficient.
- 2 State and prove addition theorem of expectation.
- 3 Write the test procedure for testing the goodness of fit.
- 4 Explain the test procedure for randomness.
- 5 Two random variables X and Y have joint P.d.f,
 $f(x,y) = K(4-x-y) \quad 0 \leq x \leq 2, 0 \leq y \leq 2$
 $= 0 \quad \text{otherwise.}$

Find (i) K , (ii) Marginal density function of X and Y , (iii) $Cov(X, Y)$.

Section - B

UNIT - II : Answer the following Questions (each question carries Five marks) $3 \times 5 = 15$

- 1 Derive the relation between t and F distribution.
- 2 Show that $\frac{\sum x_i (\sum x_i - 1)}{n(n-1)}$ is an unbiased estimate
- 3 of θ^2 for the sample $x_1, x_2, \dots, x_n$ drawn on X which takes values 1 or 0 with probability θ and $(1-\theta)$.

Name of the Faculty : Dr. P. Mounika

Dept. Statistics

INTERNAL ASSIGNMENT QUESTION PAPER -

COURSE : B.A.(Maths & Applied Maths) II year

Paper : I Subject : Mathematics Year II

Total Marks: 30

Section - A

UNIT - I: Answer the following short questions (each question carries three marks) $5 \times 3 = 15$

1. Find the equation of the plane through the points $P(2, 2, -1)$, $Q(3, 4, 2)$, $R(7, 0, 6)$
2. Find the image of the point $P(1, 3, 4)$ to the plane $2x - y + 2z + 3 = 0$.
3. Find the equation of the cylinder whose generators are parallel to $\frac{x}{1} = \frac{y}{-2} = \frac{z}{3}$
4. Show that a Cauchy sequence of real numbers is bounded.
5. Prove that $\sum_{n=1}^{\infty} \frac{1}{n(n+1)}$ converges

Section - B

UNIT - II: Answer the following Questions (each question carries Five marks) $3 \times 5 = 15$

1. State and prove Bolzano - Weierstrass theorem
2. Find the condition that the lines of intersection of the plane $lx + my + nz = 0$ and cones $fy^2 + gzx + hxy = 0$, $ax^2 + by^2 + cz^2 = 0$ should be coincident.
3. Find the eqn. of the sphere through the points $(0, 0, 0)$, $(0, 1, -1)$, $(-1, 2, 0)$ and $(1, 2, 3)$.

Name of the Faculty : DR. RAVIS

Dept. Mathematics

PROF.G.RAM REDDY CENTRE FOR DISTANCE EDUCATION

OSMANIA UNIVERSITY HYDERABAD-500 007

INTERNAL ASSIGNMENT 2024-2025

Course: BA (Maths & Stats),

Paper: II

Title: Applied Mathematics

Year: II Year

Section-A

Answer the following short question (each question carries three marks)

5×3=15

1. Define orthonormal set of functions and show that the functions $1, \cos x, \sin x, \cos 2x, \sin 2x, \cos 3x, \sin 3x, \dots$ are orthogonal on the interval $(-\pi, \pi)$.
2. Show that (i) $J_{-n}(x) = (-1)^n J_n(x)$ if n is positive integer and
(ii) $J_n(-x) = (-1)^n J_n(x)$ if n is positive integer or n is negative integer
3. Solve $3 \frac{\partial u}{\partial x} + 2 \frac{\partial u}{\partial y} = 0$. Where $u(x, 0) = 4e^{-x}$.
4. Solve $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} = 0$. Where $u(x, 1) = x^3$.
5. Solve the one-dimensional wave equation.

Section-B

Answer the following short question (each question carries five marks)

3× 5=15

1. Solve the two-dimensional heat equation and also discuss a solution of the wave equation satisfied by a thin membrane bounded by a rectangle in $x = 0, x = a, y = 0, y = b$ and $u = f(x, y)$ at $t = 0$.
2. Solve the two-dimensional wave equation.
3. Solve the Three-dimensional Laplace equation. And also find the potential $\phi(x, y, z)$ in the region $0 \leq x \leq a, 0 \leq y \leq b, 0 \leq z \leq c$, satisfying the conditions