

# **INTERNAL ASSIGNMENT QUESTIONS**

**B.A. (Maths & Stats) II YEAR**

**ANNUAL EXAMINATIONS - 2026**



**PROF. G. RAM REDDY CENTRE FOR DISTANCE EDUCATION**

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

**OSMANIA UNIVERSITY**

(A University Accredited by NAAC with "A" + Grade Category – I Graded Autonomy by UGC)

**DIRECTOR**

**Prof. N.Ch. Bhattacharyulu**

**Hyderabad – 7 , Telangana State**

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

Dear Students,

Each student has to write the answers to the Assignment questions with neat own handwriting using **BLUE PEN** (Black Ink not allowed) for each paper. Assignments have to submit after the payment of Rs.500/- by showing the receipt of the same. If the Assignment is not submitted within stipulated time i.e. before the theory exams / last date is treated as absent.

**\*Statistics Assignment papers carries 20 marks and \*Maths & Applied Mathematics Assignment papers carries 30 marks.**

**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. YEAR WISE ( I, II & III YEAR) :
  5. TITLE OF THE PAPER :
  6. 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 **20-02-2026** at the concerned counter at PGRRCDE, OU on any working day and obtain receipt.

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INTERNAL ASSIGNMENT

Course : B.A. II year

Paper : I Title : Statistics - II Year II

Total Marks : 20

Section - A  
Assignment - I

UNIT - I : Answer the following short questions (each question carries five marks)  $5 \times 2 = 10$

1. Define correlation coefficient. State and prove its properties.
2. Define regression. Derive regression line of Y on X.
3. Define t-distribution. State its assumptions, properties and applications.
4. ~~State~~ Explain the relationship between t & F distributions.
5. State the Neyman-Pearson Lemma.

Section - B  
Assignment - II

UNIT - II : Answer the following Questions (each question carries five marks)

$3 \times 5 = 15$   
 $2 \times 5 = 10$

~~State and prove Neyman-Pearson Lemma.~~

1. Explain large sample test for difference of Means.
2. Explain advantages and disadvantages of non-parametric tests.

Name of the Faculty : M. Anitha

Dept. Statistics

*Anitha*

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INTERNAL ASSIGNMENT QUESTION PAPER

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

Paper : II Subject : Mathematics Year II

Total Marks: 30

Section – A

UNIT – I : Answer the following short questions (each question carries three marks) 5x3=15

- 1 Find the equation of the plane through the points  $P(2, 2, -1)$  &  $(3, 4, 2)$ ,  $R(7, 0, 6)$ .
- 2 Find the centre and radius of the sphere  $x^2 + y^2 + z^2 - 6x + 8y - 10z + 1 = 0$
- 3 Define convergent and Divergent of a sequence.
- 4 State limit comparison test.
- 5 State Cauchy's mean value theorem.

Section – B

UNIT – II : Answer the following Questions (each question carries Five marks)

3x5=15

Find the shortest distance between the lines.

1  $\frac{x-1}{2} = \frac{y-2}{3} = \frac{z-3}{4}, \frac{x-2}{3} = \frac{y-3}{4} = \frac{z-4}{5}$

2. Find the eqn. of the sphere through the four points  $(4, -1, 2)$   $(0, -2, 3)$   $(1, -5, -1)$   $(2, 0, 1)$ .

3. Find the eqn. of the cone with vertex  $(3, 4, 3)$  and  $3x^2 + 2y^2 = 6, y + z = 0$  as base.

Name of the Faculty :

Dr. G. SUDHAKAR RAO

Dept. MATHEMATICS

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**INTERNAL ASSIGNMENT QUESTION PAPER**

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

Paper : II Subject : Applied Mathematics Year II

**Total Marks: 30**

**Section - A**

**UNIT - I : Answer the following short questions (each question carries three marks) 5x3=15**

- 1 Show that  $(2n+1)P_n = (n+1)P_{n+1} + nP_{n-1}$  ( $n \geq 1$ )
- 2 Solve  $\frac{\partial^2 u}{\partial x^2} = \frac{1}{k} \frac{\partial u}{\partial t}$  using variable separable method
- 3 Solve ~~the~~ one dimensional Heat equation  $\frac{\partial z}{\partial t} = c \left( \frac{\partial^2 z}{\partial x^2} \right)$  in the range  $0 < x < 2\pi$ ,  $t > 0$  subject to the boundary conditions:  
 $z(x, 0) = \sin 3x$  for  $0 < x < 2\pi$ ,  $z(0, t) = z(2\pi, t) = 0$  for  $t > 0$
4. Solve three dimensional Heat equation in cylindrical co-ordinates
5. Solve that  $x J_n'(x) = n J_n(x) - x J_{n+1}(x)$

**Section - B**

**UNIT - II : Answer the following Questions (each question carries Five marks) 3x5=15**

- 1 Show that the functions  $\sin n, \sin 2n, \sin 3n, \dots$  are orthogonal on the interval  $(0, \pi)$
2. Show that  $\int_{-1}^1 f_n(x) dx = 0$  ( $n \neq 0$ ) and  $\int_{-1}^1 P_0(x) dx = 2$ .
3. Solve  $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = \frac{\partial u}{\partial t}$ ,  $v=0$  when  $t=0$ ,  $x=0$  and  $y=0$  and

**Name of the Faculty :** D.D. RAJES

**Dept.** Mathematics