

**INTERNAL ASSIGNMENT QUESTIONS**  
**Advanced Diploma in Mathematics**  
**Semester - I**

**2024**



**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**

Dear Students,

Every student of Advanced Diploma in Mathematics Semester I 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 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 **09-09-2024** 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.**

**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. SEMESTER ( I, II, III & IV) :
  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 **09-09-2024** at the concerned counter at PGRRCDE, OU on any working day and obtain receipt.

✓   
16/8/24  
DIRECTOR

INTERNAL ASSIGNMENT QUESTION PAPER - 2023 - 2024

COURSE : Advanced Diploma in Mathematics - Semester - I

Paper : I Subject : sets, Relations and Functions.  
~~Mathematics~~

Total Marks: 30

Section - A

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

- 1) Define the equality of sets.
- 2) The empty set is a subset of every set.
- 3) Define the cartesian product of two sets.
- 4) If  $A = \{1, 2, 3\}$ ,  $B = \{a, b, c, d\}$  then  $A \times B$ .
- 5) Every well ordered set is totally ordered.

Section - B

UNIT - II : Answer the following Questions (each question carries ten marks)  $2 \times 10 = 20$

- 1) For a relation  $R$  on  $A$  we have
  - (i)  $R$  is reflexive iff  $I_A \subset R$
  - (ii)  $R$  is symmetric iff  $R = R^{-1}$
  - (iii)  $R$  is transitive iff  $(R \circ R) \subset R$
- 2) state and prove cantor's theorem.

Name of the Faculty : Dr. B. Reddy

Dept. maths (Wizam college)

INTERNAL ASSIGNMENT QUESTION PAPER - 2023 - 2024

COURSE : Advanced Diploma in Mathematics - Semester - I

Paper : II Subject : Matrices & Group Theory.

Total Marks: 30

Section - A

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

- 1 State and prove Fermat Theorem.
- 2 If A and B are non-singular square matrices, then  $\text{Adj}(AB) = \text{Adj} B \cdot \text{Adj} A$ .
- 3 Solve by crammer's Rule :  $x_1 + 2x_2 = 6$ ,  $-3x_1 + 4x_2 + 6x_3 = 30$ ,  
 $-x_1 - 2x_2 + 3x_3 = 8$
- 4 Define i) Rank of a matrix ii) Echelon form of a matrix
- 5 Show that every subgroup of index 2 is a normal subgroup.

Section - B

UNIT - II : Answer the following Questions (each question carries ten marks)  $2 \times 10 = 20$

- 1 Find the Eigen values & Eigen vectors of the Matrix  $A = \begin{bmatrix} 3 & 1 & 4 \\ 0 & 2 & 6 \\ 0 & 0 & 5 \end{bmatrix}$
2. State and prove Lagrange's theorem in the groups.

Dr. J. G. Shyam Sunder  
Name of the Faculty :

Dept. Mathematics,

INTERNAL ASSIGNMENT QUESTION PAPER - 2023 - 2024

COURSE : Advanced Diploma in Mathematics - Semester - I

Paper : III Subject : Real Analysis

Total Marks: 30

Section - A

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

- 1 Define Supremum, Infimum, open set, closed sets & limit point
- 2 Define sequence, convergent sequence, subsequence
- 3 State Rolle's theorem
- 4 State Taylor's theorem
- 5 Define Riemann integrability

Section - B

UNIT - II : Answer the following Questions (each question carries ten marks)  $2 \times 10 = 20$

- 1 State and prove Bolzano Weierstrass theorem
- 2 State and prove the fundamental theorem of integral calculus

Name of the Faculty : Dr. Ayesha Siddiqui

Dept. mathematics

INTERNAL ASSIGNMENT QUESTION PAPER - 2023 - 2024

COURSE : Advanced Diploma in Mathematics - Semester - I

Paper : IV Subject : STATISTICS - I

Total Marks: 30

Section - A

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

1. If  $h_p = 3024$  Find  $n$  and  $\gamma$ .
2. Two cards are drawn from a deck of cards. What is the probability that both cards will be spades?
3. Define Binomial Distribution and Poisson Distributions.
4. Explain Importance of Normal distribution in Statistics.?
5. Explain Discrete and Continuous variables.

Section - B

UNIT - II : Answer the following Questions (each question carries ten marks)  $2 \times 10 = 20$

1. Explain moment Generating functions. and write the properties of Moment Generating functions.
2. The following marks have been obtained by a class of students in physics (out of 50)

Paper - I	40	25	30	24	29	32	34	35	33	32
Paper - II	43	27	40	26	30	35	39	38	36	35

Name of the Faculty :

Dr. D. SHEKHAR

Find the lines of regression  
and examine their relationships.

Dept. Mathematics.