

INTERNAL ASSIGNMENT QUESTIONS M.Sc. (MATHEMATICS) FINAL (YWS)

2026



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. 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.

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. PREVIOUS / FINAL (Year Wise Scheme) :
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 **10th June, 2026** at the concerned counter at PGRRCDE, OU on any working day and obtain receipt.

Note : Write the Answers in A4 size white papers with Blue ink / ball point pen only

DIRECTOR

INTERNAL ASSIGNMENT QUESTION PAPER - 2026

Course M.Sc. (Mathematics)

Paper : I Title : Complex Analysis Year : Final

Section - A

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

- 1 Show that z and z' correspond to diametrically opposite points of the Riemann sphere if and only if $z \bar{z}' = -1$
- 2 For what values of z is $\sum_{n=0}^{\infty} \left(\frac{z}{1+z}\right)^n$ convergent
- 3 Find the real and imaginary parts of e^z
- 4 Find $\oint_{|z|=2} \frac{dz}{z^2-1}$
- 5 Define 1) Morera's Theorem 2) Liouville's Theorem
3) Fundamental Theorem of Algebra

Section - B

UNIT - II : Answer the following Questions (each question carries Five marks) $2 \times 5 = 10$

1. state and prove Weierstrass M-Test.
2. state and prove Cauchy's Integral Formula.

 17/2/24

Name of the Faculty :

Dr. K. Ramesh Babu

Dept. of Mathematics

INTERNAL ASSIGNMENT QUESTION PAPER - 2026

Course M.Sc. (Mathematics)

Paper: II Title: Measure Theory Year: Final

Section - A

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

- 1 Prove that outer measure of an interval is its length.
- 2 State and Prove Bounded Convergence Theorem
- 3 State and Prove Egoroff's theorem
- 4 State and Prove Holder's and Minkowski's Inequalities
- 5 (State and Prove Jordan decomposition theorem);
State and Prove Riesz Fisher theorem.

Section - B

UNIT - II : Answer the following Questions (each question carries Five marks) $2 \times 5 = 10$

1. State and Prove Vitali Covering Lemma
(a)
(b) State and Prove Hahn decomposition theorem.
2. (a) State and Prove Radon Nikodym theorem
(b) State and Prove Jordan decomposition theorem.

Name of the Faculty : D.V. SRINIVAS

Dept. Mathematics

INTERNAL ASSIGNMENT QUESTION PAPER - 2026

Course M.Sc. (Mathematics)

Paper: III

Title: Operations Research
and
Numerical Techniques.

Year: Final

Section - A

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

- Solve the following LPP graphically
 $\text{Max } Z = 100x_1 + 50x_2$ s.t.c: $4x_1 + 6x_2 \leq 24$, $x_1 \leq 4$, $x_2 \leq 4/3$, $x_1, x_2 \geq 0$
- Explain the steps for Vogel's Approximation Method in T.P.
- Explain the concept of Dominance in Games Theory.
- Find a real root of the equation $x^3 - x - 1$ by Newton Raphson Method correct to 4 decimal places.
- Using Simpson's $\frac{1}{3}$ rule, evaluate $\int_0^{\pi/2} \sin x dx$ (4 intervals)

Section - B

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

$2 \times 5 = 10$

- Use Runge-Kutta method to approximate y , when $x=0.1$ & $x=0.2$ given that $x=0, y=1$ and $\frac{dy}{dx} = x+y$.
- Solve the following Assignment Problem

	I	II	III	IV	V
A	2	9	2	7	1
B	6	8	7	6	1
C	4	6	5	3	1
D	4	2	7	3	1
E	5	3	9	5	1

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

Dept. Mathematics

PROF.G. RAM REDDY CENTRE FOR DISTANCE EDUCATION

OSMANIA UNIVERSITY, HYDERABAD, 500007

INTERNAL ASSIGNMENT QUESTION PAPER 2026

COURSE: M.Sc -MATHEMATICS , YEAR-FINAL, PAER-IV

SUBJECT: FLUID MECHANICS.

SECTION – A

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

1. Find center of mass a solid uniform right circular cone of height 'b'.
2. Find moment of inertia of a thin spherical shell of radius 'a' about any diameter.
3. Derive gradient , divergence and curl operators in orthogonal curvilinear coordinates and express these in cylindrical and spherical coordinates.
4. Derive equation of continuity in vector form.
5. Explain about source, sink and doublet.

SECTION B (2*5 = 10)

1. Define stress, strain and derive the relation between stress and rates of strain.
2. Explain flow between two parallel plates and plane coquette flow and Poiseuille flow.

AV Lakshmi
(Prof. A. Venkata Lakshmi)
Dept of Mathematics

PROF.G.RAM REDDY CENTRE FOR DISTANCE EDUCATION

OSMANIA UNIVERSITY, HYDERABAD-500 007

INTERNAL ASSIGNMENT QUESTION PAPER 2026

Course: M.Sc.(Mathematics)

Paper : V

Title: Integral Transforms, Integral Equations and Calculus of Variations

Year: Final

Section-A

5×2=10

Answer the following questions(each question carries Two marks).

1. Find i) $\int_0^{\infty} \frac{e^{-2t} - e^{-3t}}{t} dt$ ii) $L^{-1} \left\{ \frac{p^2}{(p^2 + a^2)(p^2 + b^2)} \right\}$ iii) $L \left\{ \frac{\sinh t}{t} \right\}$

2. Find the Fourier transform of $f(x) = e^{-\frac{x^2}{2}}$.

3. Find the Fourier sine and cosine transforms of $f(x) = 2e^{-x} + 6e^{-2x}$.

4. Solve $\varphi(x) = \sin x + 2 \int_0^x e^{x-t} \varphi(t) dt$ using resolvent kernel.

5. Solve $\varphi(x) = 2x - \pi + 4 \int_0^{\frac{\pi}{2}} \sin^2 x \varphi(t) dt$.

Section-B

2×5=10

Answer the following questions(each question carries Five marks)

1. State and prove convolution theorem for Laplace transforms and Fourier transforms.

2. Solve the boundary value problem $y'' + y = x^2, y(0) = y\left(\frac{\pi}{2}\right) = 0$ using Green's function.

Name of the Faculty : Prof.V.NAGARAJU

Dept. of Mathematics