INTERNAL ASSIGNMENT QUESTIONS
M.Sc (Mathematics) FINAL

ANNUAL EXAMINATIONS
June / July 2018

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. C. GANESH
Hyderabad – 7 Telangana State

Dear Students,

Every student of M.Sc. (Mathematics) Final Year has to write and submit **Assignment** for each paper compulsorily. Each assignment carries **20 marks.** The marks awarded to you will be forwarded to the Controller of Examination, OU for inclusion in the University Examination marks. The candidates have to pay the examination fee and submit the Internal Assignment in the same academic year. If a candidate fails to submit the Internal Assignment after payment of the examination fee he will not be given an opportunity to submit the Internal Assignment afterwards, if you fail to submit Internal Assignments before the stipulated date the Internal marks will not be added to University examination marks under any circumstances.

You are required to **pay Rs.300/-** towards the Internal Assignment Fee through Online along with Examination fee and submit the Internal Assignments along with the Fee payment receipt at the concerned counter.

ASSIGNMENT WITHOUT FEE RECEIPT WILL NOT BE ACCEPTED

Assignments on Printed / Photocopy / Typed papers 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:

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 including Sunday 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 COURSE	:
2.	NAME OF THE STUDENT	:
3.	ENROLLMENT NUMBER	:
4.	NAME OF THE PAPER	:
5.	DATE OF SUBMISSION	:

6. Write the above said details clearly on every assignments paper, otherwise your paper will not be valued.

7. Tag all the assignments paper-wise and submit

8. Submit the assignments on or before **25TH MAY, 2018** at the concerned counter at PGRRCDE, OU on any working day and obtain receipt.

Prof. C. GANESH
DIRECTOR

INTERNAL ASSIGNMENT- 2017 - 2018

Course : M.sc, Mathematics

Paper : I   Title : Complex Analysis.   Year: ~~Previous~~ / Final

Section – A

UNIT – I : Answer the following short questions (each question carries two marks)   5x2=10

1. State and prove Luca's theorem.

2. Prove that the limit function of uniformly convergent sequence of continuous functions is continuous.

3. Expand $\frac{2z+3}{z+1}$ in powers of $z-1$. what is the radius of convergence

4. prove that the cross ratio (z_1, z_2, z_3, z_4) is real if and only if the four points z_1, z_2, z_3, z_4 lie on a circle or on a straight line.

5. State and prove Weierstrass theorem for isolated essential singularity.

Section – B

UNIT – II : Answer the following Questions (each question carries Five marks)   2x5=10

1. State and prove the sufficient condition for analytic function.

2. i) state and prove argument principle
ii) state and prove Rouche's theorem.

Name of the Faculty : Dr. S. Hari singh N

Dept. Mathematics.

INTERNAL ASSIGNMENT- 2017 - 2018

Course : M.Sc Mathematics

Paper : II   Title : Measure Theory   Year: ~~Previous~~ / Final

Section – A

UNIT – I : Answer the following short questions (each question carries two marks)   5x2=10

1 State and prove bounded convergence theorem.

2 State and prove Fatous lemma.

3 State and prove Monotone Convergence theorem

4 State and prove Jordan decomposition theorem

5 State and prove Holder's inequality

Section – B

UNIT – II : Answer the following Questions (each question carries Five marks)   2x5=10

1. Show that L^p spaces are Complete.

2. State and prove Hahn decomposition

3. State and prove Radon Nikodym theorem.

Dr. V. SRINIVAS

Name of the Faculty : V.J____19

Dept. Mathematics

INTERNAL ASSIGNMENT- 2017 - 2018

Course : MSc (Mathematics)

Paper : II   Title : Operations Research & Numerical Techniques   Year: ~~Previous~~ / Final

Section – A

UNIT – I : Answer the following short questions (each question carries two marks)   5x2=10

1. Explain Graphical Solution of two variable LPP.
2. State and prove Reduction Theorem in Assignment problem
3. Define a) pure strategy b) Mixed strategy in Games theory
4. Write the Algorithm for Newton Raphson Method.
5. Construct a difference table from the following data:

x :	1	2	3	4	5	6	7	8	9
$f(x)$:	1	8	27	64	125	216	343	512	729

Section – B

UNIT – II : Answer the following Questions   (each question carries Five marks)   2x5=10

1. Solve by using Big-M Method the following LPP

    $Max\ z = -2x_1 - x_2$ STC $3x_1 + x_2 = 3, 4x_1 + 3x_2 \geq 6, x_1 + 2x_2 \leq 4, x_1, x_2 \geq$

2. Use Runga-kutta Method of order four to find y when $x = 0.4$ in steps of 0.2 given that $\frac{dy}{dx} = 1 + y^2, y(0) = 0$

Name of the Faculty :   Dr. PG Shyam Sunder

Dept. Mathematics.

INTERNAL ASSIGNMENT- 2017 - 2018

Course : M.Sc. Mathematics

Paper : IV   Title : Fluid Mechanics II   Year: Previous / Final

Section – A

UNIT – I : Answer the following short questions (each question carries two marks)   5×2=10

1 Explain about K.E of a system particles.

2 Derive the equation of continuity in vector form.

3 Define Sourse, sink and doubdet and their strength.

4 Explain about Reynold number.

5 State the Buckingham π-theorem

Section – B

UNIT – II : Answer the following Questions (each question carries Five marks)   2×5=10

1(a) Derive Navierstokes eqn in vector form and write in cartesion, cylindrical and spherical coordinates.

1(b) state and prove conservation law of linear momentum and angular momentum.

2(a) obtain the Von Karman's integral eqn.

(b) Discuss the motion of sphere through an infinite mass of liquid at rest at infinite

Name of the Faculty : Dr.A Venket lakshmi

Dept. MATHEMATICS

Section – A

UNIT – I : Answer the following short questions (each question carries two marks)   5x2=10

1   Find $L\{\cosh 2t \cos 3t\}$

2   Find $L^{-1}\{\dfrac{1}{P(P+1)(P+2)}\}$

3   Find Fourier sine and cosine transform of $f(x) = \begin{cases} 1, & 0 \le x \le \\ 0, & x > \end{cases}$

4   Solve the Integral Equation : $\phi(x) = 1 + \int_0^x \sin(x-t)\,\phi(t)\,dt$

5   Prove that the homogeneous Integral Equation
$$\phi(x) = \lambda \int_0^1 (3x-2)\, t\, \phi(t)\, dt$$ has no eigen values and eigen Functions

Section – B

UNIT – II : Answer the following Questions (each question carries Five marks)   2x5=10

1. Define convolution theorem and find $L^{-1}\{\dfrac{P^2}{(P^2+1)(P^2+4)}\}$

2. Using Green's Function, Solve the boundary value problem
$$y'' + y = x \text{ with } y(0) = y(\pi/2) = 0$$

Name of the Faculty : Dr. K. Ramesh B

Dept. of Mathematics

15/4/18