INTERNAL ASSIGNMENT QUESTIONS
P.G. Diploma in Mathematics

ANNUAL EXAMINATIONS
(2016 - 2017)

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. SHIVARAJ
Hyderabad – 7 Telangana State

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

Dear Students,

Every student of **PG Diploma in Mathematics** course 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 in subsequent years. 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 Internal Assignment marks through DD (in favour of Director, PGRRCDE, OU) and submit the same along with assignment at the concerned counter **on or before 31-07-2017** and obtain proper submission receipt.

ASSIGNMENT WITHOUT THE DD 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. DD. NO. & DATE :

Note: Submit Examination fee payment acknowledge receipt at counter while submitting Internal Assignment Scripts.

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 **31-07-2017** at the concerned counter at PGRRCDE, OU on any working day and obtain receipt.

Prof. Shivaraj
DIRECTOR

INTERNAL ASSIGNMENT- 2016 - 2017

Course : PG Diploma in mathematics.

Paper : I **Title :** Sets Relations and functions, & Boolean Algebras **Year: Previous / Final**

Section – A

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

1 Define Union and Intersection with examples.

2 prove that $A \cap B = B \cap A$ for any two A, B sets.

3 If $A = \{1,2,3,4\}$, $B = \{0,2,4,5,6\}$ then find $A-B$, $B-A$ & $A \times A$.

4 Define equivalence relation and partial orders

5 Define, one-one, onto and Bijective functions.

Section – B

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

1. If A, B and C are sets then (i) $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$
(ii) $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$

2. (i) Define cartesian product of two sets and give Example.
(ii) If A, B & C are any sets then $A \times (B \cap C) = (A \times B) \cap (A \times C)$

Name of the Faculty : Ramalingaiah. Kadari (Asst. Prof.)

Dept. ULE, OU, 9010015710.

INTERNAL ASSIGNMENT- 2016 - 2017

Course : Post Graduate Diploma in Mathematics.

Paper : II Title : Algebra Year: Previous / Final

Section – A

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

1 Show that the product of LCM and GCD is equal to the product of the numbers

2 For the matrix $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$, find A^{-1}.

3 Every subgroup of a cyclic group is cyclic. Show it.

4 Define the rank of a matrix.

5 Show that every field is an integral domain.

Section – B

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

1. State and Prove Lagrange's Theorem for groups.

2. Using Simplex method, Solve the following LPP:

Max $Z = 3x_1 + 2x_2$

S.T.C $-x_1 + 2x_2 \leq 4$

$3x_1 + 2x_2 \leq 14$

$x_1 - x_2 \leq 3$

$x_1, x_2 \geq 0$

Name of the Faculty :
Dr. P. G. Shyam Sundar
Dept. Maths
OUCW, Kothi, Hyderabad
500095.

INTERNAL ASSIGNMENT- 2016 - 2017

Course : P.G. DIPLOMA IN MATHEMATICS.

Paper : III Title : Calculus and Differential Equations Year: Previous / Final

Section – A

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

1 Prove that $\lim_{n\to\infty}\left(1+\frac{1}{n+1}\right)^n = e$

2 If f is continuous [a,b] then f is Riemann integrable on [a,b].

3 Solve: $\frac{dy}{dx} - x\tan(y-x) = 1$.

4 Solve: $(D^3+D^2-D-1)y = 0$

5 Solve: $pq = xy$.

Section – B

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

(i) State and prove Bolzao-Weierstrass theorem

(ii) State and prove Rolle's theorem.

2. Solve the one dimensional heat equation $\frac{\partial y}{\partial t} = a^2\frac{\partial^2 y}{\partial x^2}$ with the boundary conditions (i) $\frac{\partial}{\partial x}y(0,t) = 0$ (ii) $\frac{\partial}{\partial x}y(1,t) = 0$ and (iii) $y(x,0) = x$.

Name of the Faculty : V. Venkateshwarlu

Dept. of mathematics, UCS, Saifabad.

INTERNAL ASSIGNMENT – 2016-2017

Post Graduate Diploma in Mathematics

Paper-IV : Statistics **Max. Marks : 20**

Note: Answer All the following questions.

Section – A (5 Q x 2 Marks = 10 Marks)

1. State and Prove the Bayes Theorem.
2. State and Prove the Chebychev's inequality.
3. Define Geometric distribution and Give at least two real life examples.
4. Establish the relationship between Central and Non-central moments.
5. Define t- distribution and give its applications.

Section-B (2 Q x 5 Marks = 10 Marks)

6. Stating the physical conditions, define Binomial distribution. Obtain its β_1 and β_2.
7. Define Normal Distribution and state its characteristics. Give its importance and applications.

Name of the Faculty: **Dr. N.Ch. Bhatra Charyulu**