INTERNAL ASSIGNMENT QUESTIONS

P.G. Diploma in Mathematics

ANNUAL EXAMINATIONS

(2015-2016)

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. H.VENKATESHWARLU

Hyderabad – 7 , Telangana State

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

Dear Students,

Every student of P.G.Diploma in Mathematics 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. 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. The assignment marks will not be accepted after the stipulated date,

You are required to **pay Rs.300/- fee** 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 20-07-2016** 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 STUDENT :
2. ENROLLMENT NUMBER :
3. P.G.Diploma in Mathematics :
4. NAME OF THE PAPER :
5. 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 assignment number wise.
8. Submit the assignments on or before **20-07-2016** at the concerned counter at PGRRCDE, OU on any working day and obtain receipt.

Prof.H.VENKATESHWARLU
DIRECTOR

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INTERNAL ASSIGNMENT- 2015 - 2016

Course : PG Diploma in mathematics

Paper : I Title : mathematics - paper Year: Previous / Final

Section – A

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

1 Define set, power set, give an examples.

2 Define function, one-one and onto functions and give examples.

3 Give the Venn diagrams to $A \Delta B$, $(A \cup B) \cap (A \cup C)$, & $A' \cap C'$.

4 Define, partial order, chain, Zorn's Lemma.

5 Give examples of sets such that $A \times (B \times C) \neq (A \times B) \times C$.

Section – B

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

1. The intersection of two equivalence relations on A is an equivalence relation on A.

2. Let $f: A \to B$ and $C \subset A$, $D \subset A$ then

(i) $f(C \cup D) = f(C) \cup f(D)$ and

(ii) $f(C \cap D) = \cap f(D)$

Name of the Faculty : RAMALINGAIAH.K

Dept. UCE, OU, Dept. mathematics

INTERNAL ASSIGNMENT- 2015 - 2016

Course : P.G. 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 Find the g.c.d of 252 & -180 and express as a linear combination of 252 & -180

2 If $A=\begin{bmatrix}1 & 2\\ 3 & 4\end{bmatrix}$ & $B=\begin{bmatrix}2 & -1\\ 0 & 5\end{bmatrix}$ compute i) $(A+B)^2$ ii) A^2-B^2

3 use cramner's Rule: $x_1+2x_3=6$, $-3x_1+4x_2+6x_3=30$, $-x_1-2x_2+3x_3=8$

4 Let G be a group. Show that G is abelian $\Leftrightarrow (ab)^2=a^2b^2 \ \forall a,b\in G$

5 Use Graphical method for solve LPP: Min $Z=200x+160y$

s.t $6x+2y \geq 12$

$2x+2y \geq 8$

$4x+12y \geq 24$

$-x-y=6$

$x,y \geq 0$

Section – B

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

1. ~~Stand~~ State and Prove Lagrange's theorem for groups.
2. Determine the eigen values and eigen vectors of $\begin{bmatrix}8 & -6 & 2\\ -6 & 7 & -4\\ 2 & -4 & 3\end{bmatrix}$

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

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INTERNAL ASSIGNMENT- 2015 - 2016

Course : P.G. Diploma in Mathematics

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

Section – A

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

1 State and prove Bolzano-Weierstrass Theorem.

2 Verify Lagrange's theorem for $f(x) = 2x^2+mx+n$ on $[a,b]$

3 Test the convergence of the series $\sum \frac{2n+3}{n^3+2}$

4 Solve: $(D^4+6D^2+9)y=0$

5 Solve: $p(1+q^2) = q(z-a)$

Section – B

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

1. (i) Define a cauchy sequence (ii) Every convergent sequence of real numbers is a cauchy's sequence (iii) Every convergent sequence of real numbers is convergent

2. Solve i) $(D^4+2D^2+1)y = x^2\cos x$.

(ii) $\cos^2 x \frac{dy}{dx} + y = \tan x$

Name of the Faculty : V. Venkateshwarlu

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INTERNAL ASSIGNMENT- 2015 - 2016

Course : P.G. Diploma in Mathematics

Paper : IV **Title :** Statistics **Year: Previous / Final**

Section – A

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

1 If A and B are independent $\bar{A}$ and $\bar{B}$ are also independent.

2 State and Prove Tchebycheff's inequality.

3 State the Properties of Moment Generating Function.

4 Derive the Mean and Variance for exponential distribution

5 Establish the relationship between central and non central Moments.

Section – B

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

1. Define Normal Distribution and State its characteristics. Also derive its characteristic function.

~~2. Explain Pearsons Control charts used for variables (X̄, R) or (X̄, σ) in detail~~

2. Explain control chart for Mean and Range charts in detail with a suitable example

Name of the Faculty : Dr. N.Ch. Bhatra chari

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