INTERNAL ASSIGNMENT QUESTIONS
Advanced Diploma in Data science

Semester - I

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

Dear Students,

Every student of Advanced Diploma in Data Science 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 **31.07.2024** 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 **31.07.2024** at the concerned counter at PGRRCDE, OU on any working day and obtain receipt.

DIRECTOR

INTERNAL ASSESSMENT

Paper : I

Subject : Data Analytics & Data Management

ASSIGNMENT - I

UNIT – I : Answer the following questions (each question carries three marks) 5x3=15

1) a) Explain the process flow of data analytics and
   b) Detail out the various data types and levels of with the examples used in data analytics.

2) What are the descriptive statistics? Explain with an example of measures of all central tendencies. Using R program examples, show the bar chart, histogram, line graphs for Air quality data set in 'R'.

3) What is ANOVA ? Explain with an example of ANOVA. Explain the significance of p value.

4) Explain the procedure for conducting hypothesis testing, define the null hypothesis and alternate hypothesis. Briefly explain the alpha and beta error and its significance.

5) Define the Chi square test. What are the prerequisites for conducting the test. Explain with an example

ASSIGNMENT - II

UNIT – I : Answer the following questions (each question carries three marks) 5x3=15

1. What is regression analysis? Take an example and create the transfer function for sales as function of product, price, units using R Program.
2. What is the clustering? Explain the various categories.
3. Briefly define the DBMS and SQL. Create a table for myclass with students details and show output. Create two deferent tables for dept1 and dept1. Run the insert, alter, change, delete, union.
4. List out all the visualization tools in the Excel and illustrate with an example of pie chart, spider chart, line graph.
5. Explain what is the purpose of macro in excel. What is the procedure for creating a macro in excel. What is the procedure for creating a macro in excel and using it. Give an example.

INTERNAL ASSESSMENT

Paper : II

Subject : Mathematics for Data Science

ASSIGNMENT - I

UNIT – I : Answer the following questions (each question carries three marks) 5x3=15

1. Define function and state the characteristics of algebraic function.
2. Write any three differences between a vector and scalar quality.
3. What is Cartesian system and discuss in brief about two dimensional and three dimensional coordinate system..
4. What is slope intercept form of a line. Give two examples of a line in slope intercept form..
5. Write the 3 step process to evaluate partial derivative of a function.

ASSIGNMENT - II

UNIT – I : Answer the following questions (each question carries three marks) 5x3=15

1. Write a short note on Gradient.
2. State the condition for multiplication of two matrices and evaluate – AB. Where

$$A = \begin{bmatrix} 4 & 2 & 4 \\ 8 & 3 & 1 \end{bmatrix} \quad B = \begin{bmatrix} 3 & 5 \\ 2 & 8 \\ 7 & 9 \end{bmatrix}$$

3. Define Special matrices like idempotent matrix, orthogonal matrix and Involuntary matrix.
4. What we mean by span of vectors.
5. define linearly independent and linearly dependent vectors.

INTERNAL ASSESSMENT

Paper : III

Subject : Python Programming

ASSIGNMENT - I

UNIT – I : Answer the following questions (each question carries three marks) 5x3=15

1. List out the standard data types of python (Unit – I).
2. Differentiate between lists and tuples (Unit – I).
3. Explain the functionality of for loop with an example (Unit – II).
4. Explain about the different ways of parameter passing (Unit – II).
5. Discuss the use of recursive functions (Unit – II).

ASSIGNMENT - II

UNIT – I : Answer the following questions (each question carries three marks) 5x3=15

1. What are the steps to create a module (Unit – II).
2. How to create python class (Unit – II).
3. Explain how to open, read and write to a file (Unit – IV).
4. Explain the process to handle an exception (Unit – V).
5. Write a program to demonstrate Exception (Unit – V).

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