

ADIKAVINANNAYA UNIVERSITY : RAJAMAHENDRAVARAM
DEPARTMENT OF SEOSCIENCES

Pre-Ph.D.ApplicationsDetails

S.No	Name of the scholar	Register No	Department	Paper-I	Paper-II	Paper-III(Research topic presentation)
1	Shiva Prasad ghatam	21105001	Geo Sciences	Recent advances in Geological sciences and Research Methodology	Ground water potential zonation and Remote sensing	An Integrated study on Groundwater Potential Zonation in and around Visakhapatnam using Geospatial and Geotechnical Techniques.

HOD *[Signature]*
Department of Geosciences

HEAD, Department of Geosciences
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ADIKAVINANNAYA UNIVERSITY:: RAJAHMUNDRY
DEPARTMENT OF GEOLOGY

Pre-PhD course work syllabus:: 2024

Paper-I: Recent Advances in Geological sciences and Research Methodology

Unit 1: Types of research- Process of Research-Formulation of objectives. Hypothesis to theory – geological example: Continental drift hypothesis to plate tectonics theory.

Dos and Don'ts for selecting a research problem. Importance of problem in National and International scenario, how to conduct research survey (books, journals, electronic search engines like Google, SCOPUS, Wikipedia Research-gate, IGCP Project Data Base, etc.). Research plan and its components

Unit 2: Methods of research (Survey, observation, case studies, experimental, historical and comparative methods) Methods of Literature collection, Experimental design, planning and execution of investigation. Methods of sampling, and analytical techniques: Collection of air, water, soil and rock samples.

Preparation of samples for microscopic examination and chemical analysis, Analytical Techniques viz. AAS, XRF, SEM, ICP, EPMA, Mass Spectrometry and Portable analytical techniques.

Unit 3: Analysis of numerical data – Central tendencies, dispersion, testing significance of variations, analyzing correlation of variables. Regression analysis; Principal Component Analysis, Factor Analysis, and Cluster Analysis and its use in geological research.

Application of Remote sensing & GIS in Geosciences.

Unit 4: Writing of Research proposal, Report and Research paper, Meaning and types – stages in preparation-characteristics-structure-documentation, foot notes and bibliography - Editing the final draft-Evaluating the final draft-checklist for a good proposal/reporter/research paper.

Unit 5: Research ethics – ethical issues, ethical committees; Publication Ethics, Scholarly publishing – IMRAD concept and design of research paper, citation and acknowledgement, plagiarism, reproducibility and accountability.

Text books

1. Research Methodology_ Methods and Techniques-New Age Publications (Academic)- C.R. Kothari - (1985)
2. Statistics and Data Analysis in Geology (3rd edition)-Wiley - John C. Davis - (2002)
3. Research Methodology in Geology by Arnold Luwang Usham
4. Research Methodology, Pearson edition, New Delhi - Rajit Kumar, (2005)
5. Higher Education Research Methodology A Step-by-Step Guide to the Research Process (1st Ed), Ben Kei Daniel and Tony Harland, Routledge publishers, 2018.
6. Manual for Research and Publication Ethics in Science and Engineering, Eun Seong Hwang, Eun Hee Cho, Young-Mog Kim, Kibeom Park, Wha-Chul Son, Tae-Woong Yoon, Jeong Mook Lim, Korean Federation of Science and Technology Societies publication, 2016.
7. How to get a Ph D, UBS publishers & Distributors, New Delhi - Philips E M & Pugh D.S., (1998)
8. Marketing Research, Text and Cases, Mc Graw Hill, Rajendra Naragundkar (2008)


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Model Question Paper

**ADIKAVI NANNAYA UNIVERSITY:: RAJAHMUNDRY
DEPARTMENT OF GEOLOGY**

Pre-PhD Examination:: 2024

Paper-I: Recent Advances in Geological sciences and Research Methodology

Time: 3Hrs

Max. Marks: 100

Answer all the questions

1. Discuss in detail note on conducting research Survey ?

OR

2. Write about types of research, research process and formulation of objectives ?

3. Give in detail on methods of research and literature collection ?

OR

4. Describe the microscopic examination and chemical analysis of rock samples ?

5. Write about the Principal component analysis ?

OR

6. Give a detail note on application of remote sensing and GIS in mineral exploration ?

7. How do you write a research proposal and research paper ?


OR

8. Describe the methods used in correcting and editing of the report/proposal in finalization ?

9. Discuss the research ethical issues and publication Ethics ?

OR

10. Give a detail note on importance of plagiarism in research ?


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DEPARTMENT OF GEOSCIENCES
Pre-Ph.D. course work syllabus:2024
(Area of Research and Methodology)

Paper II: Ground water potential zonation and Remote sensing. (G. Shiva Prasad)

Time: 3 Hrs.

Max. Marks: 100

Answer all the questions.

Each question carries 20 Marks

1. Brief essay on various types Aquifers?
OR
2. Describe various types of wells and a note on artificial groundwater recharge?
3. Explain different Geophysical methods for groundwater exploration?
OR
4. Write an essay on ground water resource management?
5. Discuss fluvial process and fluvial landforms?
OR
6. Write an essay on Coastal land forms?
7. Write about fundamentals of remote sensing?
OR
8. Give a brief note on GIS?
9. Discuss the applications of remote sensing and GIS in ground water studies?
OR
10. Discuss about Analytical hierarchy process in ground water resource management?

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Paper II: Ground water and Remote sensing (G. Shiva Prasad)

Unit-1

Groundwater: Occurrence and movement of ground water, types of aquifers, ground water levels, types of wells, methods of artificial ground water recharge, site selection for artificial recharge, ground water assessment and management methods, optimal ground water development.

Unit-2

Geophysical methods- Electrical resistivity method, surveying procedure, sustainable water resource management, ground water exploration techniques.

Unit-3

Geomorphology: Fluvial land forms, evolution of fluvial land forms, drainage pattern, ground water quality assessment, quality of ground water for agriculture, drinking and industrial purposes, ground water pollution

Unit-4

Fundamentals of Remote sensing: Sensors, Platforms and data acquisition, introduction to Geographic Information System (GIS) and its uses, image interpretation and GIS mapping.

Unit-5

Applications of remote sensing and Geographic information system (GIS) in ground water studies, identification of ground water potential zones, Land use/land cover, Image processing, Analytical Hierarchy Process.

Text books:

1. P.S.Roy, R.S.Diwedi and D.Vijayan (2010), Remote sensing applications, NRSC, Hyderabad
2. Groundwater geophysics - A tool for hydrogeology, Reinhard Kirsch, Springer verlag, 2006
3. Groundwater Hydrology- David K. Todd (Author), Larry W. Mays (Author).
4. Remote sensing models and methods for image processing, Robert Shcowergerdt III edition, 2004.
5. Raghunath H.M., (1994): Hydrology, Wiley Eastern Ltd., New Delhi, 1994.

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