PITHAPUR RAJAH'S GOVERNMENT COLLEGE
(AUTONOMOUS), KAKINADA-533 001, AP-533001

REACCREDITED BY NAAC WITH 'A' GRADE

AFFILIATED TO ADIKAVI NANNAYA UNIVERSITY, RAJAMAHENDRAVARAM, AP

IQAC

3.4.1) The Institution ensures implementation of its stated Code of Ethics for research

RESEARCH ETHICS

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PHYSICS

ADIKAVI NANNAYA UNIVERSITY: RAJAHMUNDRY

Department of Physics

Pre Ph.D. Examination Syllabus (w.e.f.2019)

Paper: I Recent Advances in Physics and Research Methodology

Unit- I: Introduction

Meaning and objectives of research, motivation and dedication in research, criteria of goodresearch, ethics in research, plagiarism, scientific integrity, selecting a topic, importance of planning, planning experimentation, field work and accessing advanced facilities.

Types of Research Studies

Define Library Research, Field Research and Laboratory Research; Explain Sample Survey, Sample Collection and/or Preparation, Data Analyses, Hypothesis, Modeling, Interpretation, and Conclusion

Unit-II: Literature Review

Journals: Standard journals in Physical Sciences, Impact factor, Citations, web based journals, Journal Metrics, Citations, h- index, writing a research paper, popular websites for scientificliterature,choosingjournal for sending research publications, styles of writing references. Search engines like Science Direct, Web of Science, Indian Citation Index and Google Scholar.

Unit III: Intellectual Property rights

Introduction to Intellectual Property Law-Evolutionary past – Intellectual Property Law Basics – Types of Intellectual Property – Innovations and Inventions of Trade related Intellectual Property Rights – Agencies Responsible for Intellectual Property Registration – Infringement – Regulatory - Overuse or Misuse of Intellectual Property Rights –Compliance and Liability Issues.Introduction to Copyrights – Principles of Copyright – Subject Matters of Copyright – Rights Afforded by Copyright Law –Copyright OwnershipIntroduction to Patent Law – Rights and Limitations – Rights under Patent Law – Patent Requirements – Ownership and Transfer – Patent Application Process and Granting of Patent – Patent Infringement and Litigation – International Patent Law – Double Patenting – Patent Searching – Patent Cooperation Treaty – New developments in Patent Law- Invention Developers and Promoters.Introduction to Trademark – Trademark Registration Process – Post registration procedures – Trademark maintenance – Transfer of rights – Inter parties Proceedings – Litigations in Trademark.

Unit-IV: Research Ethics and Plagiarism

Research Ethics and Plagiarism: Rules and guidelines for research publications -Code of Research ethics, Authorship guidelines- Plagiarism policies of UGC and its software information – Information on UGC Care journals list.

Unit V: Preparation of Thesis:

Structure of thesis, background of the work, importance of language, grammar, scientific and systematic way of presentation, statistical analysis, use of graphical representation, proper preparation of graphs and tables, discussion, comparison with previous work, interpretation of results, summery and conclusions.

References:

1. Blum, Deborah and Mary Knudson, eds. A field guide for science writers: the official guide of the National Association of Science Writers, New York: Oxford University Press, 1997.
2. Booth, Wayne, Gregory G Colombo, Joseph M. Williams. The craft of Research Chicago University of Chicago Press, 1995.
3. Davis, Martha. Scientific Papers and Presentations. San Diego: Academic Press, 1997.

ADIKAVI NANNAYA UNIVERSITY: Rajamahendravaram

Pre PhD Examinations Model Questions papers

Paper-I Recent Advances in Physics and Research Methodology, (w.e.f 2019)

Time: 3hours Max Marks -100

SECTION-A

Answer all questions

Each carried 20 Marks

Answer the Following 5×20=100M

1 .Define Research and explain the objectives criteria of good research and ethics in research.

OR

.Describe various types of research and explain sample survey, preparation, collection and data analysis.

2.What are the standard journals in physical sciences? Explain their impact factor and citations.

OR

Explain how to choose a journal for sending research publications. Briefly explain about search engine like science direct and Indian citation index.

3.What is an intellectual property law and explain the basic types, inventions and innovations in intellectual property rights?

OR

Describe Patent law, rights under patent law, application process, granting of patent and new developments in patent law.

4.Describe the plagiarism rules and guidelines for research publications and code of research ethics.

OR

Write about the plagiarism policies of UGC and explain its software information.

5.Explain the structure of thesis, importance of the language scientific and systematic presentation.

OR

Explain the statistical analysis and preparation of graphs and tables and explain how do you interpret the results and write the conclusions.

ADIKAVI NANNAYA UNIVERSITY: RAJAHMUNDRY

Department of Physics

Pre Ph.D. Examination syllabus (w.e.f 2019)

Paper: II Nano Science, Preparation Techniques and Their characterization(w.e.f 2019)

(**G.Hanumantha Rao**)

Unit I

Fundamentals in Nano Technology: Introduction and Features of Nanotechnology, size dependent nano properties of nano materials: chemistry and properties of Nano-structured materials. Variation in properties of micro and Nanomaterials,Introduction to solid state physics – crystal structures, Free electron theory of metals, Properties of metals, Expression for electrical conductivity, verification of ohms law

Unit II

Synthesis of Nanomaterials: Dimensional Nanostructures: Nanoparticles: Introduction, different strategies for synthesis of these Nanomaterials and their technological applications: One- Dimensional Nanostructures: Nanorods and Nanowires: Introduction, different strategies for synthesis of 1D Nanomaterials and their technological applications: Two –Dimensional Nano structures. Thin film: Introduction, different strategies for synthesis of 2D Nanomaterials and their technological applications: Special Nanomaterials and applications: Introduction, different strategies for synthesis of special Nanomaterials (e.g. carbon, micro and mesoporous , zeolites, core-shell structures, hybrid Nanomaterials, nanocomposites etc) and their technological applications.

Unit III

Preparation of Photocatalyst and Other AdvancedMaterials: Standard Ceramic Method, Preparation of Photo catalyst,Solgel Method, Coprecipitation Method, Applications of Photo catalyst, Preparation of Ferrites,Preparation of Glasses, Spray pyrolysis, electro chemical deposition, Atomic layer deposition, Pervoskite solar cells, preparation methods

Unit IV

Characterization of Materials: Introduction to structural characterisation, Diffraction Techniques (XRD powder / single crystal). Small angle X-ray scattering(SAXS), scanning electron microscopy (SEM), transmission electron microscopy(TEM), Resonance Techniques (ESR and Mossbauer) – Spectroscopic Techniques (Laser Raman , FTIR, UV (Liquid and solid) - X- ray photoelectric spectroscopy (XPS), Energy Dispersive X-ray spectroscopy(EDS), Auger electron spectroscopy(AES).

.**Unit V**

Potential Applications of Nano Technology: Nano solar cells,Pervoskite solar cells, Fuel cells, Medical applications,Biological applications, Food and agricultural applications, Batteries, Milatary. Aerospace, Marine, communication applications, sensor applications

References:

1 Solid stste Physics : Charles Kittle

2 Charles P, Poole. Jr.& Frank J.owens, Introduction to Nano technology- John wiley& sons Inc.Publushers-2006.

3 Guozhong Cao Nanostructures and Nanomaterials, Synthesis, Properties and applications- Imperial College press.

4 Introduction to Glass Science and Technology by J.E.Shelby

5 .T.Pradeep, “NANO: The Essentials, Understanding Nanoscience and Nanotechnology”,Tata McGraw- Hill Publishing CompanyLimited 2007.

6. Solar cells,M.Markvat and Luis Castaner ,Elasverpublications

ADIKAVI NANNAYA UNIVERSITY: Rajamahendravaram

Pre PhD Examination Model Question Paper

Paper –II Nano Science, Preparation Techniques and Their characterization(w.e.f.2019)

(G.HanumanthaRao)

Time: 3hours Max Marks -100

SECTION-A

Answer all questions

Each carried 20 marks

Answer the Following

5×20=100M

1. Explain the Variation in properties of micro and Nanomaterials with Length scale involved and effect on properties

   OR

   Express the equitation for electrical conductivity and verification of ohms law.

2. Classify Nanomaterials based on dimensionality and their synthesis.

   OR

   Explain Special Nanomaterials, their synthesis and technological applications.

3. Explain Preparation of Photo catalysy in Sol-gel Method and what are its Applications?.

   OR

   Explain the any preparation method in fabrication of Glass

4. Describe Structural Characterisations- X-ray diffraction (XRD), Scanning electron microscopy (SEM), Transmission electron microscopy (TEM).

   OR

   Explain the description for UVspectrsocpy and analyse different parameters using this UV spectroscopy

5. Explain Biological and Medical applications of Nano Tecnology?

   OR

   Explain the Fabication of perovoskit solar cells and what are its significance?

ZOOLOGY

T. Venkareswara Rao

Paper-I: Recent Advances in Life Sciences & Research Methodology

UNIT-I:

Basic and applied research, Literature survey and collection, Identification of the problem, Setting up of objectives, Experimental design, standardization of protocols, Annual report preparation, Thesis writing, Research paper and Review article writing, Project writing. Research ethics, Plagiarism

UNIT-II:

Biochemical techniques: Extraction, isolation, purification, Identification and characterization of Proteins, Quantification of carbohydrates, Extraction of lipids, Enzyme kinetics –Enzyme assay, activity, turn over, yield. Measurement of pH: Use of indicators, Sterilization techniques, Media Preparation. Centrifugation techniques-Principle and applications of Centrifugation.

UNIT-III:

Microscopy – Principle, types, and applications of Microscopy.
Chromatography: Principle, types and applications of chromatography
Spectrophotometry–Principles and applications of Visible, UV spectrophotometry, IR, NMR, AAS.
Electrophoresis–Principle, types and applications of electrophoretic techniques
Isotopes–Scintillation counter, Gamma ray counter, Radioactive decay, Measurement and Units of radioactivity, safety measurements, Disposal of radioactive wastes.

UNIT-IV:

Biostatistics – Sampling methods, Sample collection, Mean, Median, Mode, Tabulation of data, Graphical representation of data, correlation, regression, Chi-square test, Student t-test, Test of significance, ANOVA Software used in Biostatics.

UNIT-V:

Computational Biology: Microsoft office- word, excel and powerpoint presentation, Graphical representation of data using EXCEL and sigma plot.
Bioinformatics: BLAST, Protein database, Intellectual property rights (IPR), property rights and Patenting (IPP).

Texts and References:

1. Researchmethodologyofbiologicalscience–byN.Gurumani
2. FundamentalsofBiostatistics–byKhan&Khanum
3. Biophysical chemistry:principlesand techniques–byUpadhyay
4. AnIntroductiontoPracticalBiochemistrybyKeithWilsonandJohnWalker
5. MolecularCloning:AlaboratoryManualbyJosephSambrookandDavidW.RussellPublishedbyColdSpringHarborLaboratoriesPress

19/3/202

Research Supervisor
DEPT OF ZOOLOGY
ADIKAVI NANNAYA UNIVERS
RAJAMAHENDRAVARA

Adikavi Nannaya University
Rajamahendravaram

PITHAPUR RAJA'S GOVERNMENT COLLEGE (A): KAKINADA
DEPARTEMENT OF ZOOLOGY
PAPER II
PRE-Ph.D. Examinations -2022

Research Scholar : Sl no 8 Admn. No. 20204006
Venkateswara Rao Tatapudi

Research Supervisor: Dr. N. SREENIVAS
P R Government College (A), Kakinada

SYLLABUS

I. PHYSICO-CHEMICAL PARAMETERS:

Water quality analysis in the study area for
pH, DO, BOD, Turbidity, TDS, Alkalinity, Hardness

II. ZOOPLANKTON

Marine environment, Zooplankton- Phytoplankton relations ships, Zooplankton Adaptations, Collection of Zooplankton, Various types of Nets, Biomass determination, Counting methods.

III. BENTHOS

Collection methods of Micro Benthos- Core- Grab, Macrobenthos quantification methods, Role of macrobenthos in Costal Ecosystem.

IV. BIOCHEMICAL COMPOSOTION

Qualitative methods for estimation of Carbohydrates, Protein, Fat, in biological samples

N.SREENIVAS, M.Sc.,Ph.D
Assistant Professor
Department of Zoology
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COMMERCE

Adikavi Nannaya University, Rajahmundry
Department of Commerce and Management Studies
Syllabus for pre-Ph.D. Examination
Paper I
Sub: Recent Advances in Management Studies and Research Methodology
Common for All

UNIT-I (Recent Advances in Management Studies)
Increasing remote and flexible working environment – Team building – Employee engagement – 360 degree performance appraisal system - Talent Management –Customer Relationship Management –Retailing –supply chain management –service quality

UNIT-II (Recent Advances in Management Studies)
Technology driven organizations — Increasing corporate social responsibility –Financial services –Factoring – Securitization – Merchant Banking – Financial Inclusion - MicroFinance models – Women Empowerment - Fintech

UNIT –III
Meaning and significance of research – Types and approaches to research – research problems – source of research problems – Methods of identifying research problem – Formulating a research problem – Research design –Elements of research design.
Data collection – concept of data, primary and secondary data –Methods of collecting data – observation –Interview and questionnaire –Measures of central tendency – Measures of dispersion –Simple correlation and regression analysis

UNIT-IV
Concept of Sampling – Sampling methods – Null Hypothesis-Alternative hypothesis-procedure for testing of hypothesis-parametric tests vs non parametric tests-Test of two samples –Test of differences between mean and proportions of small and large samples – Chi square test of independence and goodness of fitness – Analysis of variance.

UNIT-V
Research ethics- ethical issues-publication ethics-plagiarism-use of plagiarism software-problems lead to unethical behaviour-predatory publications.

References

1. Mark Saunders, Philip Lewis, Adrian Thornbill, Research Methods for Business Students, Pearson,ND
2. Churchill, Iacobucci & Israel, Marketing Research: A South Asian Perspective, Cengage, New Delhi 3. C.R. Kothari, Research Methodology, New Age International.
4. Carver & Nash, Data Analysis with SPSS, Cengage, New Delhi
5. Alan Bryman & Emma Bell, Business Research Methods, Oxford University Press.
6. Donald R. Cooper & Pamela S. Schindler, Business Research Methods 8th Edition, Tata McGraw Hill.
7. K.V.S. Sarma, Statistics made sample, do it yourself on PC, Prentice Hall.
8. V P Michael, Research Methodology in Management, Himalaya, Mumbai