

Department of Atomic Energy (DAE) – Indira Gandhi

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igcar.gov.in Syllabus - General Intelligence/ Reasoning

- Number Ranking
- Analogies
- Non-Verbal Series
- Coding-Decoding
- Logical Venn Diagrams
- Figurative Classification
- Classification
- Venn diagrams
- Number Series
- Figural Pattern
- Cubes and Dice
- Directions
- Number, Ranking & Time Sequence
- Blood Relations
- Arrangements
- Arithmetical Reasoning
- Mathematical Operations

IGCAR Junior Research Fellowship Syllabus - Quantitative Aptitude

- Time and Work Partnership
- Ratio and Proportion

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- Boats and Streams
- Simple Interest
- Time and Distance
- Problems on Trains
- Areas
- Averages
- Indices and Surds
- Compound Interest
- Volumes
- Odd Man Out
- Quadratic Equations
- Probability
- Profit and Loss
- Races and Games
- Numbers and Ages
- Mixtures and Allegations
- Mensuration
- Permutations and Combinations
- Problems on L.C.M and H.C.F
- Pipes and Cisterns
- Percentages
- Simple Equations
- Problems on Numbers

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- Simplification and Approximation

Indira Gandhi Centre for Atomic Research General Knowledge Syllabus

- Important Days
- Indian History
- Books and Authors
- Awards and Honors
- Capitals of India
- Indian Economy
- Budget and Five Year Plans
- Countries and Capitals
- International and National Organizations
- Indian National Movement
- Sports
- Current Affairs – National and International
- Abbreviations
- General Policy
- Science and Technology
- Science – Inventions & Discoveries

Physical Sciences - IGCAR Junior Research Fellowship Syllabus Topics

- Investigations on behaviour of materials at low temperatures
- High pressures

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- Magnetic fields to explore novel properties of materials
- Investigations of defect properties of solids using ion beams and positrons
- Computer simulations of material properties
- Studies on surfaces, coating and nanomaterials
- Exploration of materials
- Sensors and detectors
- Soft condensed matter

IGCAR JRF Chemical Sciences Syllabus

- Chemical thermodynamics
- Solid state and high temperature chemistry
- Electrochemistry
- Spectroscopy and laser
- Radiochemistry
- Advanced separation techniques
- Actinide Chemistry
- Trace / ultra-trace analytical techniques synthesis
- Characterization of nano-ceramics and Chemical sensors

IGCAR Syllabus - Engineering Sciences

- Robotics and Development of Intelligent machines
- Thermal Hydraulics and Structural Mechanics
- Design of critical components

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- Modeling studies
- Safety Analysis
- Wireless networking
- Parallel computing
- Embedded and Simulator systems
- Non-destructive Evaluation and Reliability
- Development of new engineering materials
- Experimental and computational studies in
 - (i) novel processing and fabrication methods
 - (ii) mechanical behaviour
 - (iii) damage tolerance and crack growth
 - (iv) structure and properties

IGCAR JRF Syllabus - Nuclear Sciences

- Basics of nuclear physics
- Nuclear Reactions
- Fission and Fusion Reactors
- Radioactivity
- Nuclear Spectrometry
- Nuclear Medicine