



GOVERNMENT OF INDIA  
DEPARTMENT OF ATOMIC ENERGY

# 27<sup>th</sup> ALL INDIA ESSAY CONTEST ON NUCLEAR SCIENCE & TECHNOLOGY



The Department of Atomic Energy (DAE) invites essays as per following details written in any official Indian language or in English from regular full time students studying for graduation in India (after 10+2), in any discipline, in an Indian university or an institute deemed to be a university. The essays should be submitted by a single author. Those who have won prizes (including consolation prize) in our earlier essay contests are not eligible.

## TOPICS

The essay should begin with an introduction and end with a conclusion. The introduction should highlight the multifarious achievements of DAE in basic sciences and nuclear technology development and how these have helped in overall societal development in the country. The introductory portion should not exceed **350 words** & should be followed by a detailed essay not exceeding **1500 words** in any one of topics given below. The conclusion should not exceed **150 words**. The entire essay should not exceed **2000 words**.

- 1. Demand for Safe, Clean and Reliable Energy in India – Role of Nuclear Power :** • Global and Indian Scenario of nuclear power including per capita consumption • Projected demand of power in the next two decades in India • Front and back ends of Nuclear Fuel Cycle • Safe management of Spent Nuclear fuel • Safety records in nuclear power generation • Nuclear waste management • Economics of nuclear power • International collaboration for accelerated growth of nuclear power • Public perception
- 2. Radioisotopes and Radiation Technologies for the Welfare of Mankind – A Saga of 120 years :** • Historical perspective • Production and properties of radioisotopes and radiation • Radiopharmaceuticals as diagnostic and therapeutic agents in health care • Radiation therapy for cancer treatment • Radiotracer applications in industry • Applications of sealed radioisotopes and radiation technologies in industry • Isotope applications in hydrology and water resources management • Radiation processing applications in health care and industry • Application of radiations in agriculture and food processing • Advances in radioisotopes and radiation based technologies • Associated radiological safety
- 3. Power Beams and their Applications in Energy, Environment and Healthcare :** • Three types of Power Beams: Plasmas, Lasers and Electron/proton beams • Properties and unique characteristics of these Power Beams • Application of Lasers, in Energy e.g., inertial confinement fusion, in Environment such as in remote sensing and pollution monitoring and in healthcare e.g., laser Scalpel, laser lithotripsy, etc • Applications of Plasmas, In Energy e.g fusion plasmas, In Environment such as toxic waste incineration and nuclear decontamination using plasma torch, and in healthcare such as for wound healing and cancer treatment • Applications of Electron/Proton beams: Accelerator driven subcritical systems for nuclear energy production, In Environment e.g., for flue gas treatment for removal of SO<sub>x</sub> and NO<sub>x</sub>, and in healthcare for sterilization • The status of Power Beam Science & Technology in India and future outlook • Conclusions

## HOW TO SEND THE ESSAY

The essay should be sent to the address given below directly by the contestant, **along with bonafide studentship certificate from the Principal of his/her College/Institute**. No essay will be accepted if sent by E-mail or Telefax. **The participant shall write his/her name, College/Institute and Residential address with Contact no and Email-ID of the Student as well as the Institute on a separate detachable sheet to facilitate communicating the results of the written Essay**. Name or address should not be written elsewhere on the text of the essay.

**Note: Essays not conforming to the said guidelines shall be disqualified.**

## MODE OF SELECTION

After initial screening and evaluation, a maximum of thirty six essays will be selected and their authors will be invited to Mumbai in the last week of October 2015 for an oral presentation of the essays. Final selection will be made on the basis of both- performance in oral presentation and quality of the written essay. Candidates are permitted to make powerpoint presentations. **Only the candidates short-listed for oral presentation will be informed. No other correspondence in this matter will be entertained.** Those called for oral presentation in Mumbai shall be eligible for:

- To and fro AC 3-Tier rail fare by the shortest route. Claim for reimbursement of rail fare for journey performed by Rajdhani/August Kranti/Shatabdi Express will be restricted to AC 3-Tier by ordinary Express/Mail train.
- Boarding and lodging in the Guest House of BARC at Anushaktinagar, Mumbai during the authorized period of stay.

## PRIZES

**First Prize (3 nos.) : Rs.21,000/-**  
**Third Prize (3 nos.) : Rs 7,000/-**

**Second Prize (3 nos.) : Rs 14,000/-**  
**\*Consolation Prize : Rs 3,000/-**

\* To all those who make oral presentation but do not secure first, second, or third prize.

The prizes will be distributed on **Founder's Day** to be celebrated on **October 30, 2015**.

**THE LAST DATE FOR RECEIPT OF ESSAY IS MONDAY, AUGUST 03, 2015**

**Address for sending the essays:**

**Assistant Administrative Officer, Public Awareness Division, Department of Atomic Energy, Government of India,  
Anushakti Bhavan, CSM Marg, Mumbai 400 001.**

**Email:- aaopad@dae.gov.in**

This information is also available on [www.dae.gov.in](http://www.dae.gov.in)