



# 28<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**.

### TOPIC: I

#### NUCLEAR POWER IN INDIA – CHALLENGES AND FUTURE DIRECTION

- Energy Scenario – Demand –Supply gap
- Indian Nuclear Power Programme
- Role of Nuclear Energy in future energy mix
- Technology development for front and back end
- Evolution of safety approach
- Why India needs international collaboration?
- Economical aspects of Nuclear power
- Public Perception

### TOPIC: II

#### SOCIETAL BENEFITS OF NON-POWER APPLICATIONS OF NUCLEAR SCIENCE AND TECHNOLOGY

- Historical perspective of radioisotopes
- Production and properties of radioisotopes and radiation
- Radiotracer applications in industry
- Applications of sealed radioisotopes and radiation technologies in Industry
- Isotopes applications in hydrology and water resources management
- Radioisotopes and radiation based technologies for material processing
- Radiopharmaceuticals as diagnostic and therapeutic agents in health care
- Radiation therapy for cancer treatment
- Application of radiations in agriculture and food processing
- New developments in industrial applications of radioisotope technology
- Role of radioisotope technology in Swachh Bharat Abhiyan
- Radiological Safety

### TOPIC: III

#### LASER LIGHT IN THE SERVICE OF INDIAN NUCLEAR ENERGY

- Introduction : Invention of lasers and their unique properties
- Recent developments of lasers: High powers and ultrashort pulses (Pettawatts to Femtoseconds)
- Applications of lasers in nuclear energy: Laser decontamination and decommissioning, Laser isotope separation, Laser based nuclear reactions
- Inertial confinement fusion with MegaJoule lasers
- Ultratrace analysis of Radionuclides
- Laser Rapid prototyping
- Future outlook

## 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 2016 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.

## 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.

## PRIZES

**First Prize (3 nos.)**  
(One for each topic)  
₹ 21,000/-

**Second Prize (3 nos.)**  
(One for each topic)  
₹ 14,000/-

**Third Prize (3 nos.)**  
(One for each topic)  
₹ 7,000/-

**\*Consolation Prize**  
₹ 3,000/-

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

The prizes will be distributed during celebration of

**FOUNDER'S DAY in OCTOBER 2016**

The last date for receipt of Essay is

**WEDNESDAY, AUGUST 03, 2016**

## 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)