



# **INTERNATIONAL SPACE OLYMPIAD 2023**

## **EXAMINATION SYLLABUS**

### **PRELIMINARY LEVEL**

#### **Our Universe**

##### **1. STELLAR PHYSICS**

Star formation  
Nuclear reactions inside stars  
Life cycle of stars  
Stellar classification  
Different types of stars  
HR diagram

##### **2. STELLAR EVOLUTION**

Main sequence stars  
Heavy mass stars  
Black holes and neutron stars  
Chandrasekhar limit  
Gravitational waves

##### **3. PLANETS AND GALAXIES**

Solar system  
Moons, Sun  
Earth (Geography, Plate Tectonics, etc)  
Gas Giants  
Types of Galaxies  
Dark Matter

### **INTERMEDIATE LEVEL**

#### **Space Technologies & Astronomy**

##### **1. OBSERVATORIES ACROSS THE GLOBE**

Biggest and first ever Observatories  
Radio Observatories  
Gravitational wave observatories

## **2. DIFFERENT TYPES OF TELESCOPES**

Earth based (Optical, Radio, etc)  
Space based (Hubble etc)  
Satellites for space observations  
Major discoveries using Telescopes  
CMBR observation

## **3. MAJOR SATELLITES AND ITS USES**

Communication  
Weather  
GPS  
Major satellites  
First ever Satellites

# **FINAL LEVEL**

## **Space Agencies & People**

### **1. MAJOR SPACE AGENCIES**

NASA (Origin and history, Astronauts, etc)  
ISRO (Origin and history, Astronauts, etc)  
JAXA (Origin and history, Astronauts, etc)  
ESA (Origin and history, Astronauts, etc)  
ROSCOSMOS (Origin and history, Astronauts, etc)

### **2. ROCKETS USED AND ITS WORKING**

Saturn Series  
SLV Indian rockets  
PSLV and GSLV  
GSLV mark III  
Fuels used in rockets  
Materials used to build  
Rockets used for Apollo Missions

### **3. SPACE MISSIONS**

Apollo Missions  
Crewed and uncrewed missions  
Mission to Pluto, Jupiter and Saturn  
Major missions to study Sun  
Major failures in the history

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