***ADVAYA  
(The intra-institute technical festival of IIT Hyderabad)***

***Presents***

**Celestial Inquisition**

Hello guys, we at Cepheid, the astronomy and astrophysics club of IITH, present before you, ‘CELESTIAL INQUISITION’ as part of Advaya. Each week, we pose challenges that include questions, puzzles, crosswords, illustrative questions etc. These weeklies shall continue through the semester, until “ADVAYA”. Each one of them will reward you some points, depending upon its difficulty.

There will be 2 rounds. The first round will have 3 individual problem sets in which the best answer to the set gets a prize. In case of tie in terms of quality of the answer, the first answer will be declared the winner. This round will have separate prizes for each set.

In the second round, there will again be 3 problem sets with points to each set based on difficulty and the participant with the most points after 3 sets wins the grand prize.

You are free to refer books, use the internet or any other source of information for answering the questions. The solution to the given question must be submitted before the mentioned deadline (mostly, a week from the day of posting the question.)

**CELESTIAL INQUISITION 1**

The first challenge of Celestial Inquisition-

1. If we were to find two planets identical in all respects except that one of them has surface water and the other has ammonia instead of water but similar in other respects. In which of these is there a greater chance of finding extraterrestrial life if both of them have a mean surface temperature of a hundred degrees Fahrenheit below zero and a temperature range similar to that of the moon?
2. Consider a future where inter-planetary or even inter-galactic travel is commonplace. A man wants to spend ten days on a short vacation in another planet and wants to spend less than 2 days travelling and at least a week at the planet. How far can this planet be?
3. It is the year 2050, and you are witnessing a scene from the first SO race in the history of mankind. It’s the first of its kind, a race around the planet. The venue is the local desert planet. The participants are funded by all sorts of companies from all over earth and neighbouring solar systems. There are even smaller companies entering ships like the SpaceShipOne. The race is about to start. Rohan and Kalpana enter the the Indian spaceship. In a few minutes, the ships detach from their space stations and the race has begun.  
   Rohan manoeuvres the spaceship such that he’s right behind the US ship, but by around 10 km.   
   Kalpana says,”I can’t wait to have a pan galactic gargle blaster, let’s increase our speed “.   
   Rohan says “No! Instead, to catch up we first need to slow down.”

Why did he say that?

Please mail you solutions to:

me09b023@iith.ac.in or me10b013@iith.ac.in

Mail your answers before 11:59 pm on 30-08-2011. Late entries will not be entertained.

For any queries, contact:

P Ashwin Kolappan Deshmukh Aniket  
Nachiket Dongre Sci-Tech Secretary  
Coordinators, Cepheid Student Gymkhana  
IIT Hyderabad IIT Hyderabad me10b013@iith.ac.in ee09b009@iith.ac.in