



# Observation Round

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## Preliminary Round

### GalACSy

Saturday

6/1/2013

30 minutes

Instructions to Participants:

1. This is a 30 minute paper. It consists of 7 questions. Answer **all** questions. Questions are not related to each other.
2. Only the numerical keypad can be used. Also the letter “k” may be used to pause or play time.
3. This booklet will not be marked. Ensure that all answers are on the answer script.
4. The marks will be denoted in the [ ] after each question. There is no negative marking.
5. Write your team name clearly on every sheet of answer paper.
6. The software “Stellarium” is used in this paper as an interactive star chart. Check that the time is set to 22:00:00 on 1 June 2013, and is located at Singapore. Please note that the software is run at speed faster than normal time.
7. **Do not turn this page until you are told to do so.**
8. Detach the answer script when submitting.

Suggestions to Participants:

1. Read all the questions when the test begins. Some questions require accurate planning of time.
2. Time is running at a rate of 10: 1 (10 minutes on the software corresponds to 1 minute of real time)

**Questions:**

1. At 22:15, if you zoom out all the way, Rigil and Arcturus can be connected by a line. A planet falls on this line. Identify the planet. [2]
2. Locate the Crux constellation. Estimate the ratio of the length of the vertical line in relation to the horizontal line. (Assume the vertical line is longer than the horizontal line) [2]
3. When on Earth, people can notice the twinkling of stars. However, to astronauts in space, stars are just dead points of light, and do not twinkle. This would imply that the twinkling of stars is of terrestrial origin, and not a natural phenomenon at the stars.  
Explain how and why stars seem to twinkle when observed from the ground. (Do not just repeat the above details.) [2]
4. At what time does the moon rise on the 1st of June? (Maximum error of 5 minutes is accepted.) [2]
5. What is the shape of the moon on the 1st of June? [2]
6. Label any 5 stars in scorpion constellation. [5]
7. Sketch 5 objects from the list below at the field of view as specified next to it. [3 each]

Object	Field of View/ degrees
Saturn	0.1
Butterfly Cluster	0.9
M13	0.5
M5	0.4
M7	0.3
Eagle Nebula	0.8
Omega Nebula	0.8
Pleiades	1.0

Team Name: \_\_\_\_\_

## Answer Script

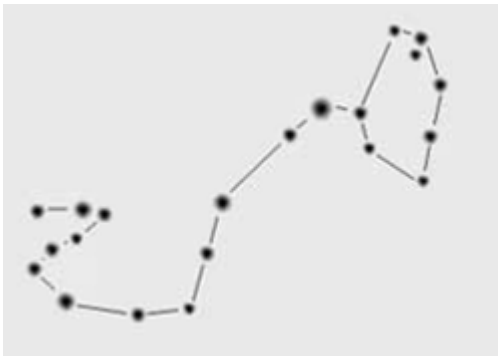
1. \_\_\_\_\_

2. The vertical line is \_\_\_\_\_ times the length of the horizontal line.

3. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_



6.

7. Please draw and label the sketches, on a blank side.

Team Name: \_\_\_\_\_

**Score (Overall):** \_\_\_\_\_/30