INSTRUCTIONS

- While you wait for your turn to enter the planetarium, you can open your envelope and read the test.
- Before entering the planetarium, you must leave your backpack and your footwear outside.
- Before entering the planetarium, each competitor will receive a red flashlight, a clipboard, a (non-red) pen, and the question sheet.
- Upon entering the planetarium, there will be a 5-minute period for eye adaptation and celestial object observation.
- The Moon and planets will be shown in the sky, if they are above the horizon. The Milky Way and other diffuse objects will not be shown in the sky.
- Inside the planetarium you can sit or lie down, but you are not allowed to stand up. If necessary, you can move around the planetarium without standing up.
- During the examination, keep your flashlight off for most of the time, and only use it when you are writing your answers. Always point the flashlight towards the paper, and not in any other direction.
- Writing anything on the answer sheet before Problem 1 begins is strictly prohibited.
- After the adaptation, you will see a notice that Problem 1 has started.
- At the end of the 10 minutes, you will see a notice that Problem 1 has ended.
- After Problem 1 has ended, you will see a notice that Problem 2 has started.
- At the end of the 10 minutes, you will see a notice that Problem 2 has ended.
- During each problem you will be warned when there is 5 minutes left, and again when there is one minute left.
- At the end of both problems, the planetarium must be evacuated quickly and in an orderly manner.
- Please leave all materials received before entering the planetarium in the designated area and proceed to the indicated location.
- In the planetarium's projection, azimuth starts at the North Cardinal Point, which is assigned 0 degrees. The East Cardinal Point has an azimuth of 90 degrees, and so on.

Problem 1 - Question 1 (4 points)

Write the names of the zodiacal constellations (in either Latin or the standard IAU abbreviation) that are partially or completely above the horizon.

Problem 1 - Question 2 (4 points)

There is a bright star (brighter than 1.3 mag) located at each of the Alt-Az coordinates given below. Give their Bayer designation.

a) Star 1: Azimuth: 254º23'; Altitude: 68º22'

b) Star 2: Azimuth: 113º24'; Altitude: 24º30'

Problem 1 - Question 3 (2 points)

a) The alpha star of a boreal constellation (i.e. northern hemisphere constellation) lies almost on the local meridian. Give the Bayer designation of this star.

b) Give the Messier Catalogue number, or New General Catalogue designation of a nebula that is located almost at the intersection of the Ecliptic and the local meridian.

Problem 2 - Question 1 (4 points)

a) In which constellation is the Moon located? Give the latin name or the IAU abbreviation.

b) Given that, for this projected sky, the Sun has set 1 hour and 26 minutes ago, identify the current month.

Problem 2 - Question 2 (4 points)

Which of the following stars are circumpolar? Circle your answers.

α Car	γ Cru	β Hyi	β Pav
β Crv	β Car	α Eri	υ Oct
α Sco	β Lup	γ Vel	α Cnc

Problem 2 - Question 3 (2 points)

A certain artificial satellite was seen passing through this sky with the following coordinates:

At Rise:

Azimuth: 98º 47’ and; Height: 7º 31’

At Maximum brightness:

Azimuth: 2º 27’ and; Height: 54º 47’

At Disappearance:

Azimuth: 311º 19’ and; Height: 26º 47’

Using the azimuth references given above, write the Bayer designation of one bright star, for each case, very close to the position of the satellite, when it is at:

a) Maximum brightness

b) Disappearance