

INSTRUCTIONS

- While you wait your turn to enter the planetarium, you can open your envelope and read the test.
- 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;
- 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.
- After that, 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

According to the nomenclature of the International Astronomical Union, write in full or abbreviated form the zodiacal constellations that are partially and completely above the horizon line.

Problem 1 - Question 2

Employing the Bayer's designation, based on the provided coordinates, identify and name the stars with with magnitudes less than 1.3.

a) Azimuth: $254^{\circ}23'$; Altitude: $68^{\circ}22'$

b) Azimuth: $113^{\circ}24'$; Altitude: $24^{\circ}30'$

Problem 1 - Question 3

Observing the projected sky, answer:

a) There is an alpha star, close to the celestial meridian line and which belongs to the boreal constellation. Using Bayer's designation, what is the name of this star?

b) Using one of the nomenclatures from Messier's Catalog, or New General Catalog, which nebula is located at the intersection between the Celestial Meridian Line and the Ecliptic?

Problem2 - Question 1

Observing the projected sky, answer:

a) Using the nomenclature of the International Astronomical Union, in which constellation is the Moon located?

b) Knowing that the Sun set 1 hour and 26 minutes ago in the projected sky, identify the current month.

Problem 2 - Question 2

Write down on your answer sheet which of the following stars are circumpolar:

α Car

γ Cru

β Hyi

β Pav

β Crv

β Car

α Eri

ν Oct

α Sco

β Lup

γ Vel

α Car

Problem 2 - Question 3

A certain artificial satellite will pass through the celestial vault with the following coordinates:

Rise:

Azimuth: $98^{\circ} 47'$ and; Height: $7^{\circ} 31'$

Maximum brightness:

Azimuth: $2^{\circ} 27'$ and; Height: $54^{\circ} 47'$

Disappearance:

Azimuth: $311^{\circ} 19'$ and; Height: $26^{\circ} 47'$

Using the azimuth references given above and the Bayer's designation, write the name of the stars in the event of:

- a) Maximum brightness
- b) Disappearance