2016 IAO observational round – answer sheet

8.1. What is the ecliptic latitude of the galactic center?

β = -5.5 deg *1pt*

8.2. The positions of four objects from the Messier catalog are indicated using Latin letters. Which are these objects?

A: M7
B: M6
C: M4
D: M80 *2 pts*

9.1. Fill in the positions and names back on the map
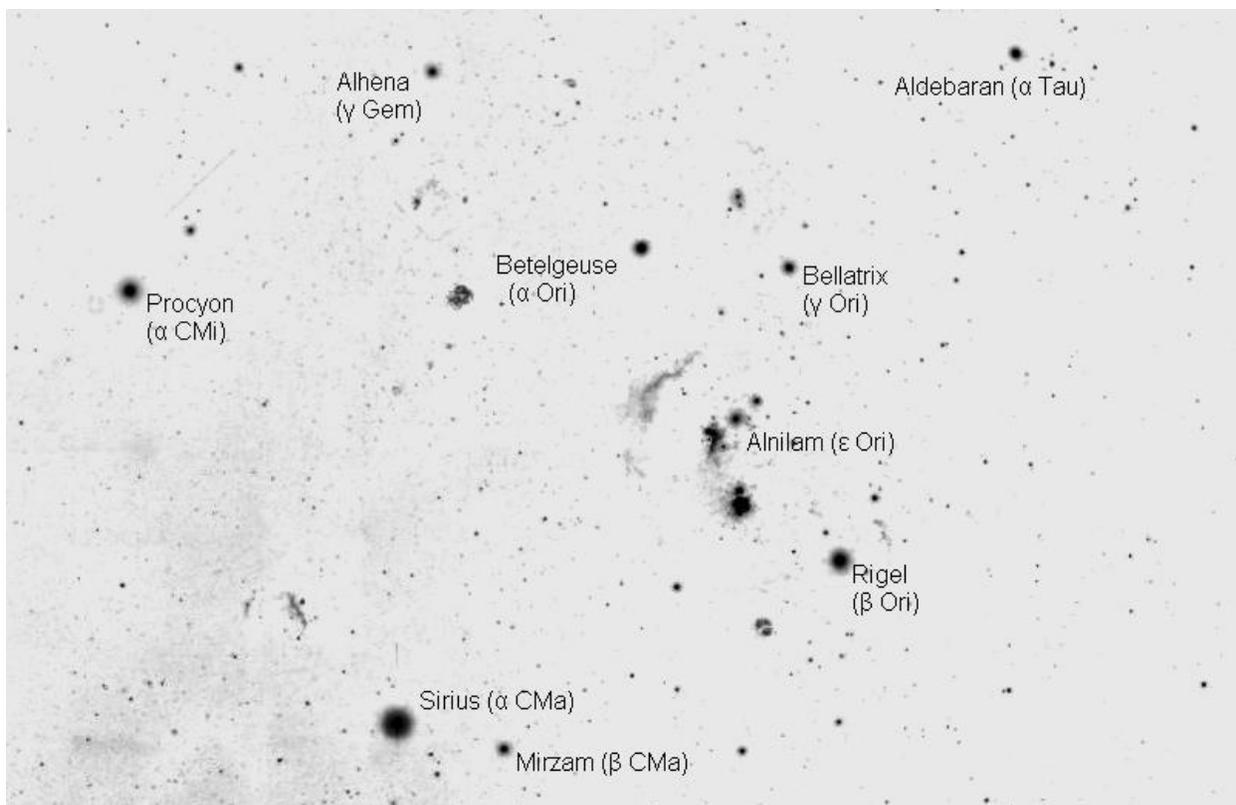
(0.25 pts for position, 0.25 pts for name, a total of 4 pts for 8 stars)

9.2. Which constellation is exactly in the southwestern (SW) corner of the map? Write its standard three-letter Latin designation.

Eri *(Eridanus)* *1 pt*

10.1. What are the equatorial coordinates of the three stars?

Star 1:   α = 9h   δ = +79 deg
Star 2:   α = 5h   δ = -13 deg
Star 3:   α = 10h   δ = +22 deg

3 pts

10.2. How many days after the preceding new moon is this night?

Answer: t = 20 – 21 d   *2 pts*

11.1. Which quasar is on the image? Identify the field and circle the correct answer.

Answer: OJ 287   *1 pt*

11.2. What changes have to be made in the equatorial coordinates of the telescope in order to put the quasar in the center of the field?

Answer: Δα = -91"   Δδ = +48"   (the signs matter!)   *2 pts*

11.3. Approximate distances to some field stars are indicated on the charts in parsecs. Estimate roughly the distance to the quasar:

0 pts: d < 1 Mpc or d > 15 Gpc

0.5 pts: d = 1 – 99 Mpc

1 pt: d = 100 Mpc – 15 Gpc

A trick question. The actual quasar is at z=0.306, corresponding to a distance of ~1 Gpc, which cannot be derived from the charts. The nearest active quasar known is at a distance of ~180 Mpc.

Task 12. What is the geographical latitude of the location of the observation that the software is simulating?

Answer: 32 degrees South   *3 pts*