Student Code number: _____ Country: _____

Day Observation

Instructions:

1. You have 20 minutes in total to solve the questions.
2. **Avoid any direct viewing of the Sun.** The telescope you are going to use will be already equipped with a solar filter and the finder scope will have been removed or covered.
3. Write your answers on the separate answer sheet provided to you. Answers / calculations on the question paper will not be evaluated.

Sun Observations (45 points)

a) Carefully point the telescope towards the Sun and centre it in the field of view. Then, ask your examiner to confirm you targeted the Sun successfully and give them your answer-sheet to take the corresponding note. If you cannot target the Sun, the examiner will target it for you, but you will lose all points of this question. **(5 points)**

b) Within the disk provided on the answer sheet, draw all the sunspots you can see through the telescope. **(10 points)**

c) Measure the declination of the Sun using the telescope. **(5 points)**

d) Estimate the right ascension of the Sun (in hours and minutes). **(10 points)**

e) What is going to be the approximate declination of the Sun in 3 months? **(5 points)**

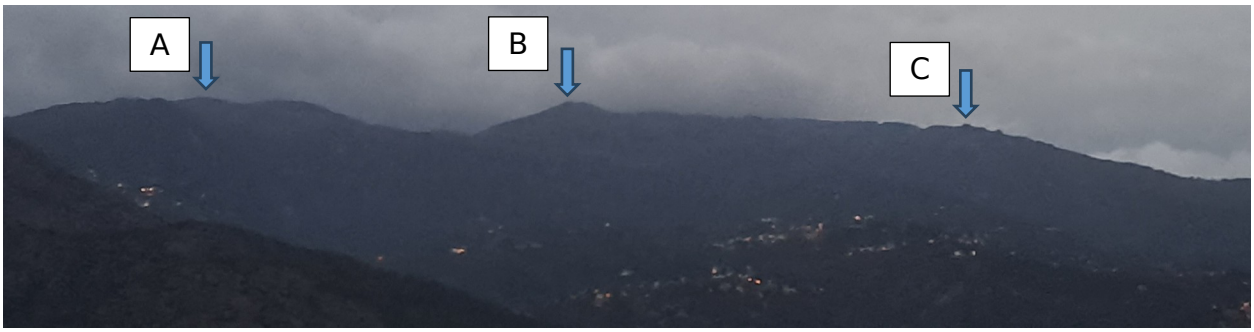
f) Call the examiner and demonstrate to them how you can “scan” with your telescope the celestial equator (make the telescope pass through all the equatorial constellations). Once you are done, give the examiner your answer-sheet to take the corresponding note. **(10 points)**

Student Code number: _____ Country: _____

Cloudy Sky Observation

Instructions:

1. You have a total of 30 minutes to solve the questions.
2. The telescope and finder tube are already aligned. Do not try to change the alignment. Both RA and declination dials are already calibrated.
3. Write your answers on the separate answer sheet provided to you. Answers / calculations on the question paper will not be evaluated.
4. The north-south line is parallel to the balcony railing, north is on your left.



Note: Point A is a summit behind first row of mountains, point b is tallest summit in the first row of mountains and point C is a square building at the right end of mountain.

A) Point the telescope to the points that are indicated with arrows in the image above. Use the dials on the telescope to determine the equatorial coordinates of these three points. **(15 points)**

B) Find the angular distance between points A and C. **(10 points)**

C) Call the examiner and demonstrate to them how you can "scan" with your telescope the celestial equator (make the telescope pass through all the equatorial constellations). Once you are done, give the examiner your answer-sheet to take the corresponding note. **(10 points)**

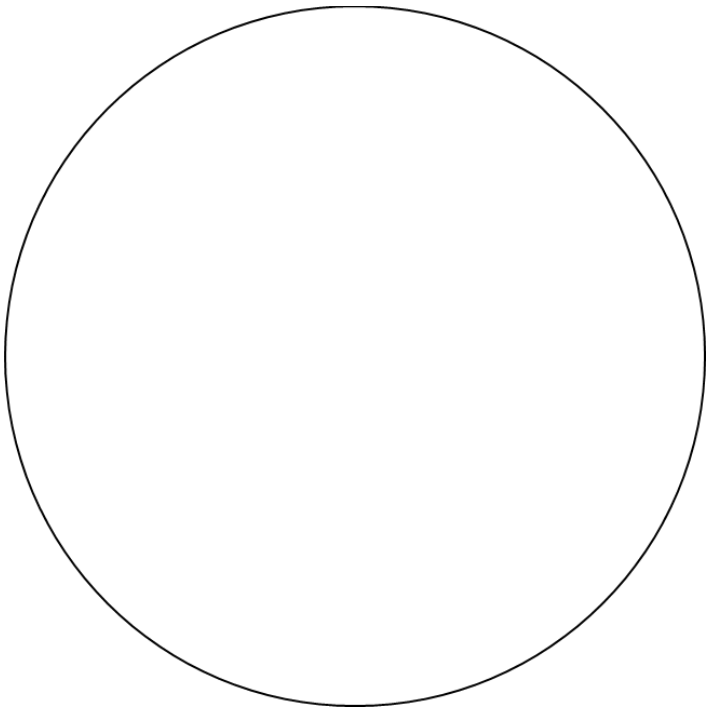
D) Point your telescope to the direction with equatorial coordinates 13h 20min and 2° S. Then, ask your examiner to confirm you targeted the right coordinates. **(10 points)**

Student Code number: _____ Country: _____

Answer Sheet – Solar Observations

a)	**For the supervisor:** Successful targeting	Yes	No

b) Draw positions of the sunspots in the following circle showing solar disk:



c)	**Answer:** The current declination of the Sun is ...	

d)	**Answer:** The right ascension (RA) of the Sun is...	

e)	**Answer:** The declination of the Sun in the 3 months will be ...	

f)	**For the supervisor:** Successful targeting	Yes	No

Student Code number: _____ Country: _____

Show your working for **part e** in the following box:

Student Code number: _____ Country: _____

Answer Sheet – Cloudy Observations

a)	**Answer:** The coordinates for A are	
	Answer: The coordinates for B are	
	Answer: The coordinates for C are	

b)	**Answer:** The angular distance between the two points is...	_____ degrees

c)	**For the supervisor:** Successful scanning	Yes	No

d)	**For the supervisor:** Successful targeting	Yes	No

Show your calculations for **part b** in the following box: