Instructions

1. Do not open the exam envelop yourself.
2. This part of the exam consists of 7* problems located in separate exam stations.
3. You have 5 minutes to complete each problem.
4. After "out of time" is signaled, stop all actions and remain at the same station.
5. After "next station" is signaled, proceed to the next exam station and hand the exam envelope to the station's proctor.
6. Use only blue pen to mark into the answer sheets provided. Any answers written in the answer sheet at the end of timer is considered final and will be graded towards the final score.

* Number of problems will be reduced to 5 if night observation was successful

P1: Naked eye observation from real sky with panoramic 360-degrees image

Instruction: Estimate the LST (Local Sidereal Time) at the time the image was taken, rounded to nearest hour

Included:

- Panoramic 360-degrees image of the sky at night at an unknown location
- Computer screen
- Keypad to pan around the image
- Coordinates of bright stars

Name	Bayer Designation	Declination (Dec)	Right Ascension (RA)
Rigil Kentaurus	**α Cen**	–60° 50′ 02.3737″	14h 39m 36.5s
Arcturus	**α Boo**	+19° 10′ 56″	14h 15m 39.7s
Vega	**α Lyr**	+38° 47′ 01″	18h 36m 56.3s
Capella	**α Aur**	+45° 59′ 53″	05h 16m 41.4s
Altair	**α Aql**	+08° 52′ 06″	19h 50m 47.0s
Aldebaran	**α Tau**	+16° 30′ 33″	04h 35m 55.2s
Antares	**α Sco**	−26° 25′ 55″	16h 29m 24.5s
Spica	**α Vir**	−11° 09′ 41″	13h 25m 11.6s
Deneb	**α Cyg**	+45° 16′ 49″	20h 41m 25.9s
Dubhe	**α UMa**	+61° 45′ 04″	11h 03m 43.7s
Polaris	**α UMi**	+89° 15′ 51″	02h 31m 49.1s
Alpheratz	**α And**	+29° 05′ 26″	00h 08m 23.3s
Schedar	**α Cas**	+56° 32′ 14″	00h 40m 30.4s

LST of the image: _____