

**IESO 2010**  
**Astronomy Practical Test**  
**Yogyakarta, 19-28 September 2010**

**Plan A; Good weather**

Time: 15 minutes

**Problem:**

Night observation using telescope with eye piece (coordinates of the location: South  $07^{\circ} 55' .0144$ , East  $110^{\circ} 34' .344$ ). Find and look carefully Jupiter (RA: 23h 56m 32s; Dec:  $-02^{\circ} 06' 59''$ ) and Galilean satellites

- a. Please select a suitable (provided) eye-piece for viewing all Galilean satellites in one field of view  
(20 points)
- b. Draw the positions of Jupiter satellites with the proper orientation on the provided answer sheet. How many satellites of Jupiter are seen?  
(60 points)
- c. Give marking the N-S and E-W directions on your answer sheet  
(20 points)

**Plan B: Bad weather**

Time: 10 menit

**Problem:**

1. Mark by names or numbers (1, 2 and 3) on the printed sky map, the positions of the bright stars as listed below (15 minutes)

1. Antares (Alpha Scorpii)  
(RA: 16h 29m 24.461s; Dec:  $-26^{\circ} 25' 55.209''$ )
  2. Vega (Alpha Lyra)  
(RA: 18h 36m 56.336s; Dec:  $+38^{\circ} 47' 01.290''$ )
  3. Arcturus (Alpha Bootis)  
(RA: 14h 15m 39.672s; Dec:  $+19^{\circ} 10' 56.67''$ )
- (total point for three stars 40)

2. Draw the ecliptic line in the map and identify the position of Mars  
(10 for ecliptic and 10 for Mars)
3. Calculate the hour angle of Jupiter (RA: 23h 56m 32s; Dec:  $-02^{\circ}06'59''$ ) in the sky at 8.00 PM local time. (coordinates of the location : South  $07^{\circ}55'.0144$ , East  $110^{\circ}34'.344$  )  
(20)(5 minutes)
4. Point the telescope to the direction of Jupiter (RA: 23h 56m 32s; Dec:  $-02^{\circ}06'59''$ ) and show to the jury (coordinates of the location : South  $07^{\circ}55'.0144$ , East  $110^{\circ}34'.344$  )  
(20)