

KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
DEPARTMENT OF ELECTRICAL ENGINEERING

EE 418	Introduction to Satellite Communications	QUIZ # 1
Semester (051)	Section (01)	15 October, 2005

NAME :		
I.D. # :		Score : / 10

- 1) Calculate the Julian date corresponding to 17:30 UT on March 20, 2010. The Julian date at the beginning of each year is given in the following table.

YEAR	JULIAN DATE	YEAR	JULIAN DATE
	2400000 +		2400000 +
2000	51544.5	2008	54466.5
2001	51910.5	2009	54832.5
2002	52275.5	2010	55197.5
2003	52640.5	2011	55562.5
2004	53005.5	2012	55927.5
2005	53371.5	2013	56293.5
2006	53736.5	2014	56658.5
2007	54101.5	2015	57023.5

- 2) A satellite is rotating around the earth in a circular equatorial orbit. It appears above a particular earth station every 3 hours. Calculate the angular velocity of the satellite, the orbital period, and the orbital height.

($\mu = 3.9861352 \times 10^5 \text{ km}^3/\text{s}^2$, earth radius = 6370 km) (Hint: Kepler's third law, $a^3 = \frac{\mu}{\omega^2}$)

Do not write below this