Question 1	True, geostationary is a special case of geosynchronous.
Question 2	200 orbits in 8 days = 15 orbits/day. 25*2π=50π rad/day. $$\frac{50\pi}{24\cdot 60\cdot 60} = 0{,}00182\ rad/s$$ Therefore the angular velocity has to be higher to achieve the repeat orbit and the requirement is not met.
Question 3	True
Question 4	True
Question 5	False, a geoid is not a mathematically perfect ellipsoid
Question 6	First we derive A by assuming $\Delta s_{L1}=\Delta s_{L2}$ Hence we obtain $$\Delta t_{L1} - \frac{A}{f_{L1}^2} = \Delta t_{L2} - \frac{A}{f_{L2}^2}$$ Rearrange terms. $$\frac{A}{f_{L1}^2} - \frac{A}{f_{L2}^2} = \Delta t_{L1} - \Delta t_{L2}$$ Put the A in just one fraction $$\frac{Af_{L2}^2 - Af_{L1}^2}{f_{L1}^2 f_{L2}^2} = \Delta t_{L1} - \Delta t_{L2}$$ $$A = \frac{f_{L1}^2 f_{L2}^2(\Delta t_{L1} - \Delta t_{L2})}{f_{L2}^2 - f_{L1}^2}$$ Now put A into the equation for Δs $$\Delta s = c_{vac}\left[\Delta t_{L1} - \frac{A}{f_{L1}^2}\right] = c_{vac}\left[\Delta t_{L1} - \frac{f_{L1}^2 f_{L2}^2(\Delta t_{L1} - \Delta t_{L2})}{f_{L1}^2(f_{L2}^2 - f_{L1}^2)}\right]$$ $$\Delta s = c_{vac}\left[\Delta t_{L1} - \frac{f_{L2}^2(\Delta t_{L1} - \Delta t_{L2})}{f_{L2}^2 - f_{L1}^2}\right]$$
Question 7	The maximum errors occurs when 1 accelerometer has an error of $1{,}5e^{-12}$ and the other has an error of $-1{,}5e^{-12}$. Then we obtain: $E_{total} = 3e^{-12}/0{,}5 = 6e^{-12}\ m/s^2 = 6e^{-3}\ E$ = 6 mE
Question 8	$$e = \left(\frac{r_{sat}}{R_e}\right)^2 \cdot 1.5E^{-12} = 1.62\mathrm{E}^{-12}\ \mathrm{m/s2}$$

Question 9	The satellite moves 2π in one year. Hence $\frac{2\pi}{265{,}25\cdot 24\cdot 60\cdot 60} = 1{,}991\cdot 10^{-7}\,\frac{rad}{s}$
Question 10	First we calculate the velocity $$V = \sqrt{\frac{\mu}{r}} = \sqrt{\frac{3986\cdot 10^2}{(6378+1300)}} = 7{,}2\ km/s$$ 1 orbit takes 2π(6378+1300)/7,2 = 6700 s to complete In 10 days the satellite makes 129 orbits 2π(6378)/129=311 km per orbit As the earth rotates during these 10 days we have to take that into account. 360/(365,25*24*60*60)*6700=0,076 deg/orbit = 1,333 mrad/orbit 1,333m * 6378=8,5 km Adding these up gives a width of 319 km. The difference between this answer and the answers provided is caused because of the use of sidereal days vs regular das. Answer a is correct
Question 11	$\lambda = \frac{c}{f} = \frac{3\cdot 10^8}{1{,}25\cdot 10^9} = 0.24\ cm$ $q = \frac{\lambda}{L} = \frac{0.24}{10} = 0.024$ rad $0.024\ \cdot \frac{180}{\pi} = 1{,}37$ deg
Question 12	Infrared had the highest wavelength thus the lowest frequency. Yellow is between red and blue. Hence all answers cancels except for c
Question 13	All of the above.