2. (a)   Due to tidal motion, the depth of sea water around a particular harbour varies from 20 m at 12 noon to 30 m at 6.00 pm and then back to 20 m again at 12 midnight. To stay in the harbour, a ship requires a sea water depth of 22.5 m. The ship sails near the harbor around noon. From what time to what time can the ship stay in the harbor?

State any assumption in your calculation.

[6 marks]

[2 pm to 10 pm]