CE 441

DESIGN OF PAVEMENTS

HW # 5C

1- Two asphalts have a penetration of 60 and 90 at $40^{o}C$ and viscosity of 10 and 12 poises at $110^{o}C$ respectively.

   a) Estimate Penetration grade of each and viscosity grade.

   b) Calculate Softening point of each.

   c) Calculate Penetration index of each.

   d) Calculate the stiffness of both asphalts when used in pavement where the loading time is expected to be 0.15 second and at the following service temperature

   i- $T = 25^{o}C$

   ii- $T = 65^{o}C$

   iii- Discuss the effect on pavement performance.

2- If 7% asphalt by volume of total mix is used in a mix which contains 3% air voids then

   calculate mix stiffness for mixes prepared by the above mentioned asphalts.