

**Q.** A distillation column separates 10,000 kg/hr of a 50% benzene-50% toluene mixture. The product D recovered from the condenser at the top of the column contains 95% benzene and the bottom W from the column contains 96% toluene. The vapor stream V entering the condenser from the top of the column is 8000 kg/hr. A portion of the product from the condenser is returned to the column as reflux R and the rest is withdrawn for use elsewhere. Assume that the composition of the streams at the top of the column (V), the product withdrawn (D) and the reflux (R) are identical because the V stream is condensed completely. Find the ratio of the amount refluxed R to the product withdrawn (D).