

Question 1 Learning the Parameters

(a) *Derive the M-step update rules for Θ and π by setting the partial derivatives of Equation 6 to zero. Be sure to show your steps.*

(b)

(c)

Question 2 Posterior Inference

(a)

(b)

(c)

(d)

Question 3 Conceptual Questions

(a)

(b)

(c)