**Part-1 Solutions:**

a) T (n) = 3T (n/2) + n =>  
 **T (n) = Θ(n lg 3 )** (Case 1)

b) T (n) = 64T (n/8) − n^2(log n) =>

**NA** (As Master theorem doesn’t apply here because f(n) is not positive here)

c) T (n) = 2nT (n/2) + nn  =>

**NA** (As Master theorem doesn’t apply here because a is not constant here )

d) T (n) = 3T (n/3) + n/2 =>

**T (n) = Θ(n log n)** (Case 2)

e) T (n) = 7T (n/3) + n2 =>

**T (n) = Θ(n2 )** (Case 3)