**Question 1**

(a)

(b)

**Question 2**

(a)

P(accepted=yes) =0.5

P(accepted=no) =0.5

(b)

P(GPA=4.0|accepted=yes)=0.5

P(GPA=3.7|accepted=yes)=0.5

P(GPA=3.5|accepted=yes)=0

P(univ=top-10|accepted=yes)=0.5

P(univ=top-20|accepted=yes)=1/3

P(univ=top-30|accepted=yes)=1/6

P(published=yes|accepted=yes)=0.5

P(published=no|accepted=yes)=0.5

P(recommendation=good|accepted=yes)=5/6

P(recommendation=normal |accepted=yes)=1/6

(c)

P(GPA=4.0|accepted=no)=0

P(GPA=3.7|accepted=no)=1/3

P(GPA=3.5|accepted=no)=2/3

P(univ=top-10|accepted=no)=1/3

P(univ=top-20|accepted=no)=1/6

P(univ=top-30|accepted=no)=1/2

P(published=yes|accepted=no)=1/3

P(published=no|accepted=no)=2/3

P(recommendation=good|accepted=no)=1/2

P(recommendation=normal |accepted=no)=1/2

(d)

X1= (GPA=3.7, university=top-20, published=yes, recommendation=good)

P(X1|accepted=yes) =0.5\*1/3\*0.5\*5/6=0.0694

P(X1|accepted=no) =1/3\*1/6\*1/3\*1/2=0.00925

P(X1)= P(X1|accepted=yes)\*P(accepted=yes)+ P(X1|accepted=no)\*P(accepted=no)

=0.0393

X2= (GPA=3.7, university=top-30, publication=no, recommendation=normal)

P(X2|accepted=yes) =0.5\*1/6\*0.5\*1/6=0.00694

P(X2|accepted=no)=1/3\*1/2\*2/3\*1/2=0.0555

P(X2)= P(X2|accepted=yes)\*P(accepted=yes)+ P(X2|accepted=no)\*P(accepted=no)

=0.03122

**Question 3**

(a)

**C1:**

a:4 b:4 c:3 d:3 e:3 f:3

**L1:**

a:4 b:4 c:3 d:3 e:3 f:3

(b)

**C2:**

aa:1 ab:2 ac:2 ad:2 ae:3 af:3

ba:1 bb:1 bc:1 bd:3 be:3 bf:3

ca:2 cb:1 cd:3 ce:3 cf:3

da:1 db:1 de:2 df:3

ef:3

(ab):1 (ad):1 (bc):2 (de):1

**L2:**

ae:3 af:3 bd:3 be:3 bf:3 cd:3 ce:3 cf:3 df:3 ef:3

(c)

**C3:**

aef:3 bdf:3 bef:3 cdf:3 cef:3

**L3:**

aef:3 bdf:3 bef:3 cdf:3 cef:3

Then, the algorithm terminates.