

| _ | M | T | W | T | F | S | S |
|---|-------|------|---|---|---|----|-----|
| | Page | No.: | | | | | |
| | Date: | | | | | YO | UVA |

$$\frac{1. (a) 3l}{3 \omega_{0,12}^{(1)}} = \frac{3l}{30} \cdot \frac{30}{3 \omega_{0,12}^{(2)}} = \frac{3l}{30} \cdot \frac{3l}{30} \cdot \frac{3l}{30} = \frac$$

$$\Rightarrow \omega_{(12)}^{(1)} := \omega_{(1)}^{(1)} - \times \cdot 2 \cdot \omega_{(2)}^{(2)} > \underbrace{\left(\omega_{(1)}^{(2)} + \omega_{(1)}^{(2)}\right)}_{(1,2)} \omega_{(1)}^{(2)} = \underbrace{\left(\omega_{(1)}^{(2)} + \omega_{(1)}^{(2)} + \omega_{(1)}^{(2)}\right)}_{(1,2)} \omega_{(1)}^{(2)} + \underbrace{\left(\omega_{(1)}^{(2)} + \omega_{(1)}^{(2)} + \omega_{(1)}^{(2)} + \omega_{(1)}^{(2)}\right)}_{(2,2)} \omega_{(2)}^{(2)}$$
where $k^{(2)} = \underbrace{\left(\omega_{(1)}^{(1)} + \omega_{(1)}^{(2)} + \omega_{(1)}^{(2)} + \omega_{(1)}^{(2)} + \omega_{(1)}^{(2)}\right)}_{(2,2)}$

(b) les, understand the three hidden layers as three separate classifices that are lines which tomplete generate the bounding triangle. We essentially calibrate slopes [sutercepts.

as No. The resultant model is no better than a linear classifier.

2: (a) We know that

$$= E \left[\log P(n) \right] = \sigma E \left[-\log P(n) \right]$$

$$\geq -\log E[Q(n)] = -\log \sum P(n) \cdot Q(n)$$

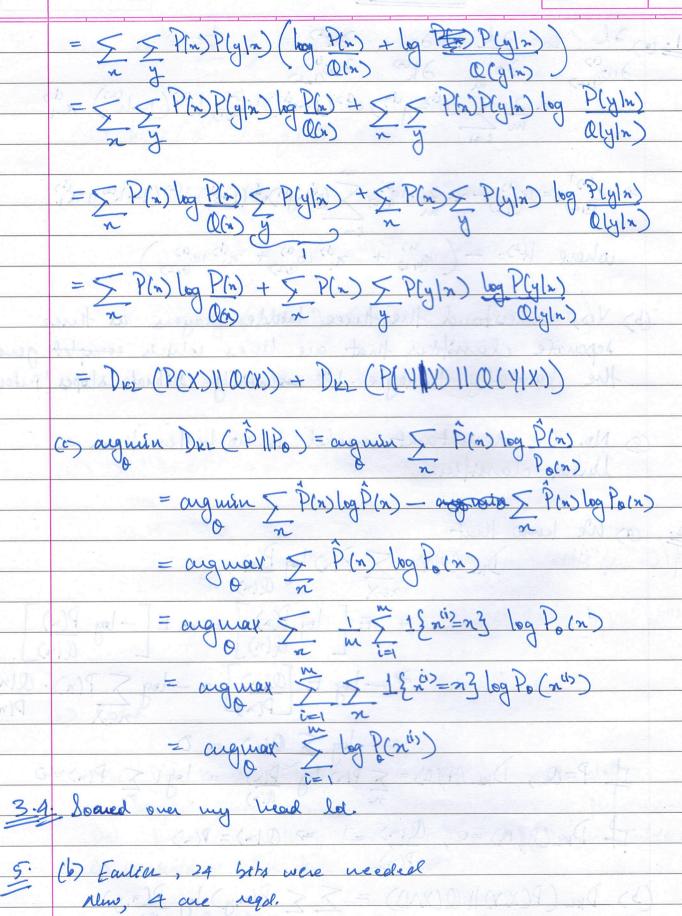
$$P(n)$$

$$= -\log \sum Q(n) = 0$$

$$T = 0$$
, $D_{RL}(P|RD) = \sum_{n} P(n) \log_{n} P(n) = 0$

(3)
$$D_{KL}(P(X,Y)||Q(X,Y)) = \sum_{x} \sum_{y} P(x,y) \log \frac{P(x,y)}{Q(x,y)}$$

| M | T | W | T | F | S | S | |
|-----------|-------|---|---|---|---|-------|--|
| Page No.: | | | | | | YOUVA | |
| Date: | YUUVA | | | | | | |



Hence, compression has been done by a factor of 6.