

《Artificial Intelligence》

Final Examination Answer Sheet

Name: _____ Student ID: _____ Dept.: _____

Section	1	2	3	Total
Score				
Reviewer				

1. Fill in the blanks (30 points, 2pt/per)

- 1). FIFO, LIFO
- 2). $-\infty$, $+\infty$
- 3). 0.1
- 4). $3/10$, $6/7$
- 5). over-fitting
- 6). $p(x_1|\theta)p(x_2|\theta)p(x_3|\theta) / p(x_1, x_2|\theta)p(x_3|\theta) / \dots / \prod_{i=1}^3 p(x_i|\theta)$
- 7). $D + D(D+1)/2$, $D+1$
- 8). $W^T \phi(x) / \phi(x)^T W / \sum_{i=1}^3 \phi(x_i) \cdot W_i$ $D(D+3)/2 = \frac{D^2+3D}{2}$
- 9). classifier
- 10). policy, $[0,1] / (0,1) / (0,1] / [0,1)$

2. Multiple Choice (36 points, 2pt/per)

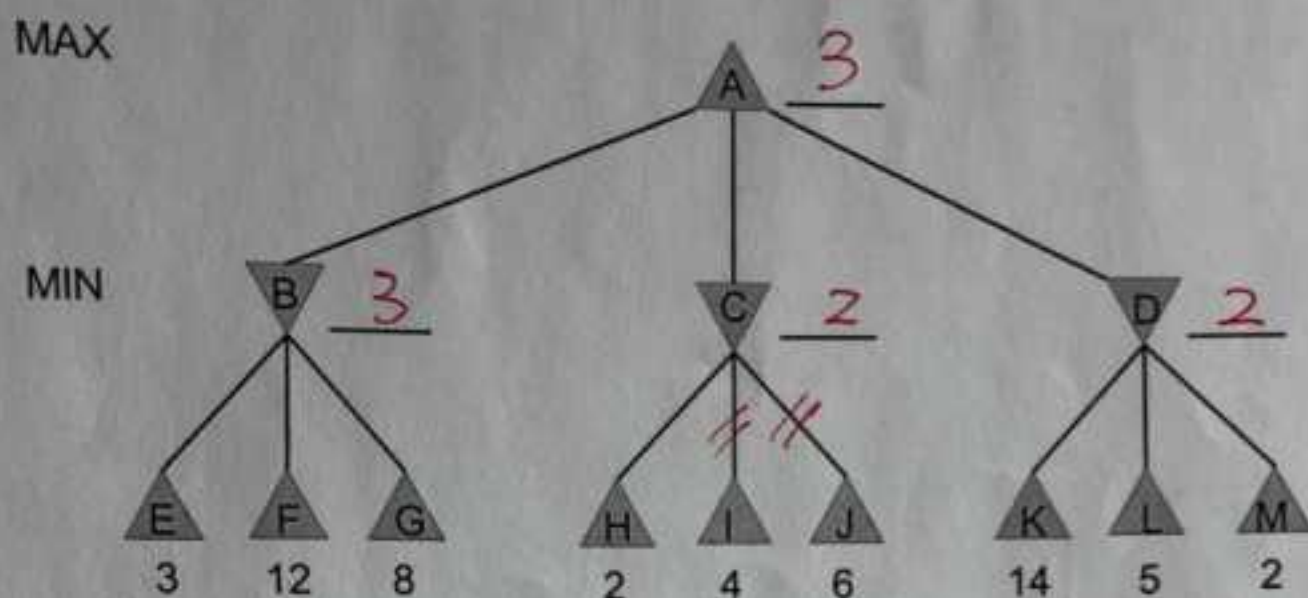
1	2	3	4	5	6	7	8	9	10
<u>C</u>	<u>D</u>	<u>B</u>	<u>C</u>	<u>B</u>	<u>C</u>	<u>B</u>	<u>A</u>	<u>D</u>	<u>B</u>
11	12	13	14	15	16	17	18		
<u>D</u>	<u>A</u>	<u>A</u>	<u>C</u>	<u>D</u>	<u>C</u>	<u>A</u>	<u>B</u>		

↑
A

3. Calculus and Analysis (34 points)

1) (Game Playing, 8 points)

(a) (4 points)



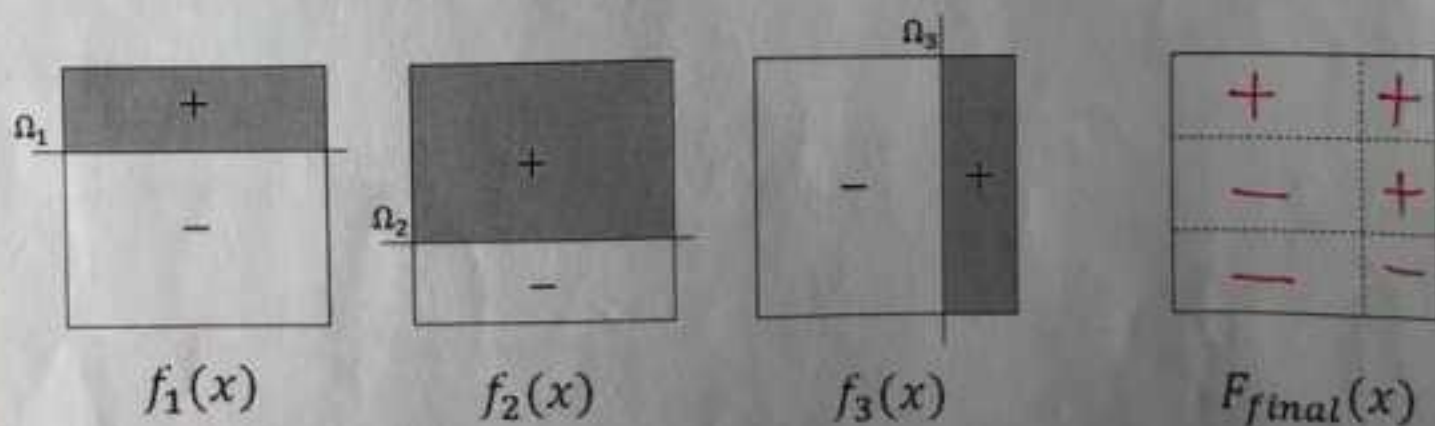
(b) (4 points)

2) (Boosting, 8 points)

(a) (4 points)

$$F_{final}(x) = \text{Sign}(\alpha_1 f_1(x) + \alpha_2 f_2(x) + \alpha_3 f_3(x))$$

(b) (4 points)



3) (Image Restoration, 6 points)

4) (Deep Learning, 12 points)

(a) (3 points)

13

(b) (3 points)

8	6
10	8

(c) (3 points)

$$\begin{pmatrix} 1 \\ 0 \\ 0 \\ 0 \\ 0 \end{pmatrix}$$

OR

$$\begin{pmatrix} \alpha_1 \\ \alpha_2 \\ \alpha_3 \\ \alpha_4 \\ \alpha_5 \end{pmatrix}$$

st. $\alpha_1 > \{\alpha_2, \alpha_3, \alpha_4, \alpha_5\}$

(d) (3 points)

convolutional kernel / filter
network parameters.