



C

perform specific
dataset and,
functions. This is
assistance

~~tres~~ arcus

of

1. Please give the information requested in the boxes below.
2. Enter your name in the space provided to the right, fold over and seal down (using the label provided) to hide your name.
3. The answers must be legibly written. The Examiners can either ignore illegible script or have it typed and the expense of typing charged to the candidate.
4. Write your answers in ink.
5. Begin each answer on a fresh page. Do all rough work in the answer book and cross it through.
6. No part of this book is to be torn out; it must be handed in complete.
7. If more books than one are used, fasten them together using the tags available from the invigilator(s).
8. **Every book must be handed in. In no circumstances may answer books, used or unused, be taken out of the examination venue.**

List the numbers of the questions you have attempted	Office Use
1	08.5
3	14
4	14.5
Total	37

46.25%

4/24/1

[8½]

1.1 The clinical assistance are designed to perform specific functional areas, and trained to use specific dataset ~~and~~, it can answer some specific functional areas questions. This is ~~weak AI~~ concepts of Weak AI applied. The clinical assistance also have ~~some~~ consciousness, ~~and~~ In the functional ~~areas~~, it can perform range of different tasks. This is concepts of Strong AI applied. *Need detailed explanation*

1.2 In clinical assistant, the VPA can retrieve medical information and assist in clinical decision making, which is classical ~~for~~ function of Weak AI, ~~VPA~~ Weak AI have all mental capacities of humans or animals but not alive, no conscious experience.

1.3 In clinical assistant, the VPA can efficient communication between ~~health care~~ healthcare teams, it is very similar to ~~per~~ humans capacity, ~~have~~

1.4. *1/3* Performance are designed "Performance measure is Evaluation of agents fulfillment of the expected tasks. such for Instance, In clinical assistance, the VPA can real-time patient status updates, the speed of updates ~~should~~ is a performance measure.

(2) Environment is the world of agent operating, For Instance, The clinical ~~assistance~~ is environment for VPA. *specify*

(3) Sensors are mechanisms of the agent interact with the environment. the VPA should comply with the clinical principles. ?

(4) ~~Actors~~ Actuators are provides input to the agent from the environment. for Instance, ~~in~~ the VPA can provide the clinical patient status to the clinical assistance.

1.5 (1) Discrimination for patient.
(2) Data Vanishing
(3) Security
(4) send error message to health care teams. *explain*

[14]

3.1 Solution:

Because the average reward for node i is 0.8
 the number of visits to node i is 15
 the number of visits to the parent node is 80
 the exploration ~~constant~~ is 1.5

So, $UCB = 0.8 + 1.5 \times \sqrt{\frac{\ln(80)}{15}} = 1.61$

3.2

3.2.1 ~~unsupervised~~ ~~learning~~ Because the credit card data as dataset is unlabelled ~~learning~~

3.2.2 ~~unsupervised~~ Because documents' contents are unlabelled.

3.2.3 ~~reinforcement~~ learning. Because reinforcement learning can optimize a ~~sequence~~ of actions to maximise user experience and sales.

3.2.4 ~~supervised learning~~ Because Reinforcement ~~learning~~. Because reinforcement learning can optimize inventory levels and supply chain operation to minimize costs.

14/2

4.1

- (1) Read dataset
- (2) ~~do~~ Data processing preprocessing
- (3) Build Neural Network Model
- (4) Train Neural Network Model
- (5) ~~Predicted~~ Evaluation Model
- (6) Prediction

preprocess
need explicit

3.5
10

4.2

4.2.1

4.2.2

4.2.3

8

492

0/1
0/1
0/12 } $\rightarrow 0/4$

4.3

The task is ~~accuracy~~ accurately classify student application as accepted or rejected based on the given feature. So the objective of predicting student admissions can be considered as a classification problem.

4.4

The best output activation functions is for this problem is Softmax function. Because this problem is a binary classification, softmax function maps the input value between [0, 1], it is ~~with~~ a very suitable for binary classification problems.

4.5

4.5

0/4

4.6.1

		predicted	
		Accepted	Rejected
Actual	Accepted	150	15
	Rejected	30	5

4.6.2

Solution :

Because

$$TP = 150$$

$$FP = 30$$

$$TN = 5$$

$$FN = 15$$

So. Precision = $\frac{TP}{TP+FP} = \frac{150}{150+30} = 0.83$

rec recall $\rightarrow$ next page

24 $\leq$ 14.5 / 40

46.2

$$\text{recall} = \frac{TP}{TP+FN} = \frac{150}{150+15} = 0.91$$

$$F1\text{-score} = 2 \times \frac{\text{Precision} \times \text{recall}}{\text{Precision} + \text{recall}} = 2 \times \frac{0.83 \times 0.91}{0.83 + 0.91} = 0.87$$