

7 (a) Identify **one** Artificial Intelligence (AI) algorithm to find the shortest distance between two points on a graph.

.....
 [1]

(b) Describe Deep Learning.

.....

 [5]

9 (a) Deep Learning is a form of Machine Learning.

(i) State **one** example where Deep Learning is used.

.....
 [1]

(ii) Identify how Deep Learning can be made more effective.

.....
 [1]

(b) Describe the back propagation of errors method in Machine Learning.

.....

 [4]

10 An exception is an error that may cause a program to halt unexpectedly.

(a) Describe how program termination due to an exception can be avoided.

.....

 [2]

(b) Identify **two** possible causes of exceptions.

1

 2

 ② [2]

3 A computer program uses a digital camera to read the words on an item.

The program can read the words that are written on the item, translate the words to a chosen language and then output the words as audio. For example, when used in a supermarket, the program can output the words written on the labels on products.

The program uses Artificial Intelligence (AI).

(a) Explain how AI is used in the computer program described.

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [4]

(b) State **two** social benefits of the use of AI in the computer program described.

1

.....

.....

2

.....

.....

..... [2]

(c) The computer program is released under a commercial software licence.

(i) Describe the features of a commercial software licence.

.....

.....

.....

.....

.....

..... [3]

(ii) Explain the reasons why an open source software licence might **not** be appropriate for the computer program described.

.....

.....

.....

.....

.....

.....

.....

..... [3]

- 6 (a)** Describe the structure of a graph as used in an Artificial Intelligence (AI) system.
-
-
-
- [2]
- (b)** Explain how supervised learning and unsupervised learning differ from each other.
-
-
-
-
-
-
-
- [4]

- 10 (a)** State the purpose of the A* and Dijkstra's algorithms.
-
- [1]
- (b)** Outline the difference between the A* and Dijkstra's algorithms.
-
-
- [2]
- (c)** Explain how unsupervised learning takes place in machine learning.
-
-
-
-
-
- [3]

- 6** A car park system uses a camera to record the registration number of each car as it enters and leaves the car park.
- Explain how artificial intelligence is used in the car park system to identify the car's registration number.
-
-
-
-
-
-
-
- [4]