Vinh Long University of Technology Education Faculty of Information Technology	**FINAL EXAM ANSWER KEY** **SEMESTER**: 2nd **ACADEMIC YEAR: 2023 -2024** Module: Artificial Intelligence Module Code: TH1333 Exam Code: 01 Duration: 90 minutes

ANSWER SECTION

Question	Answer content	Points
Question 01		**2.0**
1	Read and load images using cv2.imread	0.25
2	Set up a sharpening filter that meets the specific requirements	0.25
3	Perform convolution with the sharpening filter	0.25
4	Display the sharpened image according to the specified requirements	0.25
5	Convert the image to grayscale	0.25
6	Set up an emboss filter according to the requirements	0.25
7	Perform convolution with the emboss filter	0.25
8	Display the embossed image with the correct surface highlighting	0.25
Question 02		**2.5**
1	Install the necessary libraries for the A* algorithm	0.25
2	Define the initial state	0.25
3	Define the goal state	0.25
4	Set up color properties for the final state in the A* algorithm	0.50
5	Ensure the colors are set as required	0.25
6	Name the output file appropriately	0.25
7	Implement the A* algorithm for the 8-puzzle game	0.50
8	Display results according to the specified requirements	0.25
Question 03		**2.5**
1	Define graph weights	0.25
2	Implement the breadth-first search (BFS) function	0.25
3	Develop a function to search for any node	0.25
4	Implement a search function from node S to node I	0.25

5	Display the path from S to I		0.25
6	Develop a function to draw the graph		0.25
7	Set the edge colors to black		0.25
8	Set the node size to 300		0.25
9	Set the node shape to square ("s")		0.25
10	Display the graph tree as required		0.25
Question 04			**2.0**
1	Download the YOLOv7 project using the wget command		0.25
2	Initialize and download the YOLOv7 model weights using wget		0.25
3	Read images using cv2.imread		0.25
4	Perform image prediction using YOLOv7		0.25
5	Display the image after object detection		0.25
6	Display labels for each detected object		0.25
7	Show the detection accuracy (%) for each object		0.25
8	Ensure objects are displayed with the required accuracy		0.25
Question 05			**1.0**
1	Set up the genes and target sequence according to the requirements		0.25
2	Set the population density to 70		0.25
3	Define the probability value within the range of 0.45 to 0.95		0.25
4	Implement the genetic algorithm to meet the specified criteria		0.25

Faculty of Information Technology	Lecturer Compilation
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