**LMS Questions for Introduction to Computer Vision DLBAIICV01**

(Five multiple-choice questions per unit with one correct answer and three incorrect answers. Use the second column to indicate the corresponding unit section.)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Unit/**  **Question Number** | **Section** | **Question** | **Correct answer** | **Incorrect answer** | **Incorrect answer** | **Incorrect answer** |
| 1/1 | 3 | Mark the RGB color code for the whitest color. | (200,200,200) | (255,0,0) | (0,0,255) | (0,255,0) |
| 1/2 | 3 | Mark the color code for a dark green. | (0,100,0) | (0,100,100) | (100,0,0) | (0,0,100) |
| 1/3 | 3 | How many stored values has an RGB colored image with resolution 500x500? | 750,000. | 7,500. | 7,500,000. | 75,000. |
| 1/4 | 3 | How many stored values has a gray-scale image with resolution 500x500. | 250,000. | 2,500. | 2,500,000. | 25,000. |
| 1/5 | 3 | A pixel value of 10 within a grayscale image is... | Dark. | Bright. | Red. | Blue. |
| **Unit/**  **Question Number** | **Section** | **Question** | **Correct answer** | **Incorrect answer** | **Incorrect answer** | **Incorrect answer** |
| 2/1 | 1 | Convolution is a filter which... | processes multiple input pixels into a single output value. | processes multiple output values into a single input pixel. | always computes the mean of the input for a given region of interest. | always computes the median of the input for a given region of interest. |
| 2/2 | 3 | Computing the output y(x,r) of a rank filter with rank r = 0.5 for the values x={25,151,84,1,224,71,71,153,120,160) results in... | y(x,r)=84. | y(x,r)=71. | y(x,r)=151. | y(x,r)=120. |
| 2/3 | 3 | Computing the output y(x) of a median filter of the values x={13,151,82,1,224,69,169,56,120) results in... | y(x)=82. | y(x)=69. | y(x)=56. | y(x)=120. |
| 2/4 | 3 | Given the input pixels x={5,5,6,5,5,6,3,3,4} and the convolution filter with m={-2,0,-2,0,6,0,-2,0,2} yields to an output of... | F(x,m)=10. | F(x,m)=-6. | F(x,m)=12. | F(x,m)=26. |
| 2/5 | 3 | What is the mode of the values x={13,15,19,24,180,180}? Please mark the correct result. | The mode of the values x is 180. | The mode of the values x is 19. | The mode of the values x is 24. | The mode of the values x is 15. |
| **Unit/**  **Question Number** | **Section** | **Question** | **Correct answer** | **Incorrect answer** | **Incorrect answer** | **Incorrect answer** |
| 3/1 | 1 | Blobs are areas within image data which... | contain objects of interest. | contain the background of the image. | contain homogenous color | Contain the date and time stamp of the recording. |
| 3/2 | 2 | Convolutional masks must be defined before applying it to an image. Mark the correct statement. | The mask needs different definitions for vertical and horizontal lines to detect. | One definition of a mask can always detect vertical and horizontal lines. | The definition is computed automatically and based on prior known data. | Four implemented masks exist and nowadays, only those four masks are used. |
| 3/3 | 3 | How are corners used within the application of computer vision? | They can be used to define the border of objects within images. | They can be used to detect the background’s position. | They are never used to define the border of objects within images. | They define the beginning and end of a Neural Network. |
| 3/4 | 1 | Low-level vision can be used to... | detect a region of interest within image data. | classify objects. | determine the color information of cars. | predict where an object is moving. |
| 3/5 | 3 | Which algorithm is widely used for edge detection? | SUSAN and Harris. | DL and ML. | RF and SCM. | Ridge and Mohamed. |
| **Unit/**  **Question Number** | **Section** | **Question** | **Correct answer** | **Incorrect answer** | **Incorrect answer** | **Incorrect answer** |
| 4/1 | 1 | What does ode-pooling do to the input? | It chooses the most significant value. | It chooses the average value. | It chooses the smallest value. | It performs a summation of the input. |
| 4/2 | 1 | Where is an input layer within a Deep Learning algorithm typically positioned? | At the beginning. | In the middle. | At the end. | Anywhere. |
| 4/3 | 2 | Atrous convolutional with an upsampling rate r=7 yields to a convolutional mask which skips how many pixels in between each input pixel? | 6. | 7. | 8. | 7.5. |
| 4/4 | 3 | Which of the following is an existing YOLO model? | YOLOv5n | YOLOv5z | YOLOv5g | YOLOv5c |
| 4/5 | 3 | Which YOLO model has the largest Neural Network. | YOLOv5l | YOLOv5m | YOLOv5n | YOLOv5s |
| **Unit/**  **Question Number** | **Section** | **Question** | **Correct answer** | **Incorrect answer** | **Incorrect answer** | **Incorrect answer** |
| 5/1 | 1 | How many images can be extracted out of a video of 120 seconds with 15 FPS. | 1800. | 180. | 18000. | 18. |
| 5/2 | 1 | How many bits are required to store one frame of a video with resolution 1920x1080 and color depth ten for grayscale? | 10 x 1080 x 1920=20,736,000 | 30 x 1080 x 1920 = 62,208,000 | 20 x 1080 x 1920 = 41,472,000 | 40 x 1080 x 1920 = 82,944,000 |
| 5/3 | 2 | Which computer vision algorithm is commonly used for object tracking? | YOLO | RF | SVM | R-CNN |
| 5/4 | 2 | Mark the steps for object tracking. | Initializing the target, appearance modeling, estimating motion, positioning target | Prediction of the resolution, computing of the object boundaries, estimating the target. | Reverse computing of the motion, initializing the recognition algorithm, estimating the target. | Reverse modeling, future prediction, object recognition. |
| 5/5 | 3 | Which of the following algorithms is famous for action recognition? | CNN | RF | ResNet | BNET |