1. **The probability density function and probability mass function –**

   The probability mass function is used to describe discrete probability distributions.

   The probability density function is applied to describe continuous

   probability distributions.

2. **Which Fuzzy logic is an extension to the Crisp set, which handles the Partial Truth –** True

3. **A 3-input neuron is trained to output a zero when the input is 110 and a one when the input is 111. After generalization, the output will be zero when and only when the input is? –** 000 or 010 or 110 or 100
4. **What is an auto-associative network? -** a neural network that contains feedback
5. **A 3-input neuron has weights 1, 2, 3. The transfer function is linear with the constant of proportionality being equal to 3. The inputs are 4, 20, 5 respectively. What will be the output? – 3*(1*4 +2*20+3*5) -- 177**

6. **In Feedforward ANN, define the information flow -** unidirectional
7. **What is the abbreviation of JPEG? -** Joint Photographic Experts Group
8. **What are the Applications of Neural Networks? - Face recognition , healthcare ,Weather forecasting , social media , Images , Signals , Language**
9. **The network that involves backward links from output to the input and hidden layers is called -** Recurrent neural network

10. **What is Image enhancement? What are its process The process of digitally modifying a stored image with software** is known as image enhancement.
11. **Which characteristics are taken together in chromaticity? -** Hue and Saturation
12. **What is chromaticity -** the quality of color characterized by its dominant or complementary wavelength and purity taken together
13. **Which of the following is the next step in image processing after compression? -** Morphological processing
14. **What is Structuring element -** is a shape, used to probe or interact with a given image, with the purpose of drawing conclusions on how this shape fits or misses the shapes in the image.
15. **Dilation process is used for what process in images -** expansion
16. **At what points, a continuous image is digitized? -** sampling
17. **Which of the following correctly describes the slightest visible change in the level of intensity? -** Intensity Resolution

18. **What is the name of the tool that helps in zooming, shrinking, rotating? -** Interpolation
19. **Define The dynamic range of the imaging system is a quantitative relation where the upper limit can be determined by –Saturation**

20. **What is Image Multiplication? -** this does an element-by-element multiplication (.*) of each corresponding pixel in a pair of input images and returns the product of these multiplications in the corresponding pixel in an output image.
21. **What is the relationship between wavelength and frequency? - Inverse relationship(c=wavelength *frequency)**
22. **How to carry out an array function together with one or more images? -** Pixel by Pixel
23. **What is meant by Region of Interest (ROI) operations? -** is commonly used in many application areas. For example, in medical imaging, the boundaries of a tumor may be defined on an image or in a volume, for the purpose of measuring its size.
24. **Blurring an image with the help of a smoothing filter may lead to - noise reduction**
25. **application of image blurring? Gross representation**
26. **How to resolve the dark features in the image? Power law transformation**
27. **What is gradient image ? -** is a directional change in the intensity or color in an image
28. **what is the smallest possible value of the gradient image? - 0**
29. **What is the name of the process that moves a filter mask over the image, followed by calculating the sum of products? -correlation**
30. **Which of the following fact is true for an image? -** An image is the multiplication of illumination and reflectance component
31. **Which of the following grey level intensities help in increasing the grey levels dynamic range in the image?** - Contrast stretching
32. **Open-source machine learning library for Python and is completely based on Torch - pytorch**
33. **Which of the following are the advantages of PyTorch? -** all of the above
34. **an imperative n-dimensional array which runs on GPU -Tensor**
35. **a package which is used to wrap a tensor.-variable**
36. **a technique or way to find the linear relation between the dependent variable and the independent variable by minimizing the distance - Linear Regression**
37. **MSE stands for? -** Mean squared error
38. **The activation functions are basically divided** – 2(linear activation ” and “ nonlinear activation.”)

39. **Which of the following is a subset of machine learning? – Deep learning**
40. **How many layers Deep learning algorithms are constructed - 3**
41. **The first layer is called the? - Inner layer**
42. **RNNs stands for? -** Recurrent neural network
43. **Which of the following is/are Common uses of RNNs? -** All of the above (Businesses Help securities traders to generate analytic reports, Detect fraudulent credit-card transaction , Provide a caption for images)

44. **Which of the following is well suited for perceptual tasks? -** Convolutional neural networks
45. **CNN is mostly used when there is an? –** unstructured
46. **Which neural network has only one hidden layer between the input and output? -** Shallow neural network
47. **Which of the following is/are Limitations of deep learning? -** Both A and B(Data labeling Obtain huge training datasets)
48. **Deep learning algorithms are more accurate than machine learning algorithm in image classification – 41 %**
49. **Which of the following neural networks uses supervised learning? - Multilayer perceptron**
50. **What are the tasks that cannot be realised or recognised by simple networks? – All of the mentioned (handwritten characters , speech sequences , image sequences)**
51. **Activation value is associated with?** - cell membrane potential
52. **What are 3 basic types of neural nets that form basic functional units among**
    i)feedforward ii) loop iii) recurrent iv) feedback v) combination of feed forward & back -- i, iv, v
53. **Feedback networks are used for auto association & pattern storage? -YES**
54. **Who invented perceptron neural networks? -** Frank Rosenblatt
55. **What was the 2nd stage in perceptron model called? -** association unit
56. **Which of the following is true for most CNN architectures? –**
    1. There are sparse connections between inputs and outputs between two consecutive layers in a CNN
    2. Parameters are shared between output neurons in a CNN layer.

    (1 and 2 are true)

57. **Pooling layers are used to accomplish which of the following? Pooling layers are used to reduce the dimensions of the feature maps**
58. **What is the size of the bias matrix for the recurrent unit?**
59. **K-means is -** clustering is an unsupervised learning algorithm

60. **Which of the following can act as possible termination conditions in K-Means? - All of the above**
61. **Which of the following statements are true with regard to K-Nearest Neighbours?**
    The decision boundary looks smoother with smaller values of k.
    As k increases, the bias usually increases.As k increases, the variance usually increases.
62. **What are the objectives of exploratory data analysis? -** involves using statistics and visualizations to analyze and identify trends in data sets
63. **What is Exploratory Data Analysis? -** is an approach to analyze the data using visual techniques. It is used to discover trends, patterns, or to check assumptions with the help of statistical summary and graphical representations.
64. **What is used to graph can be used for simple summarization of data? – Barplot**
65. **What is the role of exploratory graphs in data analysis? They are typically made very quickly**
66. **What is used activation function is generally categorized into: ReLU**
67. **The network that involves backward links from output to the input and hidden layers is called RNN**
68. **What is used to calculate Loss function in PyTorch?**
69. **The numbers of pooling layers in PyTorch are: 3**
70. **What does the import cv2 statement do?**
    Import our openCV python binding
71. **Suppose our image has a width of 700 pixels, a height of 550 pixels, and 3 channels, one for each Red, Green, and Blue component. How would we express this image as a NumPy array shape? (500,700,3)**
72. **What is RGB tuple codes for blue. ? how does opencv iterprets (255,0,0)**
73. **Suppose, We have an image whose resolution is 760x 512. How many total pixels are in the image?**
    760 pixels across width and 512 pixels high
74. **The process of converting an image from other colour space, varying the pixel intensity in between the black and white region is known as:**
    GrayScaling
75. **What is used to used to draw line in OpenCV?**
    cv2.line()
76. **What is used to OpenCV is used to detect edges of the image?**
    cv2.Canny()
77. **What is used to OpenCV is used to show an output image?**
    cv2.imshow()

78. **The average positive difference between computed and desired outcome values is known as:**

    Mean absolute error

79. **Which of the following statements is true for the Perceptron Learning Algorithm?**

    If the dataset is not linearly separable, the perceptron algorithm does not coverage and keeps cycling between some sets of weight.

80. **What is Sigmoid function** Sigmoid Function **acts as an activation function in machine learning which is used to add non-linearity in a machine learning model.**

81. **We use a learning rate that is too large in neural network? What will be the outcome**

    Network will not converge

82. **What is used to representation of learning algorithm?**

    Better business strategy

83. **What is single layer Perceptron?**

    A single layer perceptron (SLP) is a feed-forward network based on a threshold transfer function

81.Consider the scenario. The problem you are trying to solve has a small amount of data. Fortunately, you have a pre-trained neural network that was trained on a similar problem. Which of the following methods would you choose to make use of this pretrained network? Freeze all the layers except the last,re-train the last layer

82.Suppose that you are training a neural network for classification, but you have notice that the training loss is much lower than the validation loss. How do u resolve it

Underfitting