1.What is Image processing?

Basically, all efforts to extract the necessary information from an image are called image processing.

2.What is Computer vision?

Computer vision is a field of artificial intelligence (AI) enabling computers to derive information from images, videos and other inputs.

It is widely used in applications like facial recognition, self-driving cars, medical imaging, and object detection.

3.Why is image processing needed in Computer Vision?

Image processing is necessary in computer vision for several reasons:

1.Noise Removal: Eliminates noise and distortions to provide cleaner data for analysis.

2.Feature Extraction: Identifies key features like edges, textures, or objects for tasks such as object recognition.

3.Image Enhancement: Improves image quality by adjusting brightness, contrast, and sharpness.

4.Object Segmentation: Divides an image into meaningful parts, allowing the system to focus on specific objects.

5.Normalization: Standardizes image size, scale, or orientation for consistent input to computer vision models.

6.Edge Detection: Identifies boundaries or edges of objects.

7.Object Detection: Locates and identifies objects within the image.

8.Color Correction: Adjusts colors to match the original hues.

4.What is an image?

An image is a picture or visual representation that has been created, captured, or stored in electronic form.

5.What is Channel in an image?

Channel is a conventional term used to refer to a certain component of an image.
চ্যানেল হল একটি প্রচলিত শব্দ যা একটি চিত্রের একটি নির্দিষ্ট উপাদানকে বোঝাতে ব্যবহৃত হয়।

6.What is image segmentation?

Image segmentation is a computer vision technique used to partition an image into distinct regions or segments that represent different objects or parts of the image.

ইমেজ সেগমেন্টেশন হল একটি কম্পিউটার ভিশন কৌশল যা একটি ইমেজকে আলাদা আলাদা অঞ্চল বা সেগমেন্টে বিভক্ত করতে ব্যবহৃত হয় যা বিভিন্ন বস্তু বা ছবির অংশগুলিকে প্রতিনিধিত্ব করে।

7.What is Feature Extraction?

Extracting important features or attributes from an image
একটি ইমেজ থেকে গুরুত্বপূর্ণ বৈশিষ্ট্য বের করা

8.Python Libraries for image processing.

a) Matplotlib.
b) Pil(pillow)
c) Scikit-image
d) OpenCV

Why does the image look different?
OpenCV uses BGR format, so when we read an image using cv2.imread() interrupts BGR format by default, opencv image in BGR and we are floating RGB image so we need to convert the BGR to RGB format.

Computer vision model execution process :

1.Data Collection
2.Data Preprocessing
3.Annotation
4.Model Selection
5.Model Training
6.Model Evaluation
7.Hyperparameter Tuning
8.Testing
9.Deployment
10.Monitoring and Maintenance