

BCM SCHOOL, BASANT AVENUE, DUGRI ROAD, LUDHIANA

Assignment 2

Class X Artificial Intelligence (417)

Chapter: Computer Vision

1. Fill in the blanks.

- a) Computer Vision enables computers to understand and analyze _____.
- b) Face recognition is an application of _____.
- c) CNN stands for _____.
- d) The process of applying a filter to an image is called _____.

2. State whether the following statements are True or False.

- a) Computer Vision allows machines to interpret visual data. _____
- b) Self-driving cars do not use Computer Vision. _____
- c) Convolution helps in extracting image features. _____
- d) Medical image analysis is an application of Computer Vision. _____

3. Match the following.

Column A

Face Recognition
Self-driving Cars
MRI Scan Analysis
Image Classification

Column B

Security Systems
Transportation
Healthcare
Computer Vision Task

4. A school wants to develop an AI system that identifies students from photographs.

Questions:

- a) Which AI domain will be used?
- b) Name one Computer Vision task involved.
- c) Mention one advantage of this system.

5. Differentiate between Human Vision and Computer Vision (any two points).

6. Name any four real-life applications of Computer Vision.

7. Case Study

A smart city plans to install cameras at traffic signals to detect traffic violations, count vehicles and identify accidents automatically.

Questions:

- a) Which AI domain will make this system possible?
- b) Name any two Computer Vision tasks used in this system.
- c) Explain how Computer Vision can improve traffic management.

8. A hospital wants to use AI to analyze X-ray images and detect diseases.

Questions:

- a) Explain how Computer Vision can help doctors.
- b) Which image features may be important for disease detection?
- c) Mention two benefits and one limitation of such systems.

9. Compare Human Vision and Computer Vision on the basis of:

- Processing
- Accuracy
- Speed
- Decision-making

10. Explain the following terms with suitable examples:

- a) Image Classification
- b) Object Detection
- c) Image Segmentation
- d) Face Recognition

11. A security company is developing an AI system that can recognize employees and allow entry only to authorized people.

Questions:

- a) Which Computer Vision task is being used?
- b) Explain the role of Convolution in this system.
- c) How do Convolutional Neural Networks (CNNs) improve image recognition?

12. A farmer wants to use drones to monitor crops and detect diseases in plants.

Questions:

- a) Explain how Computer Vision can help the farmer.
- b) Which Computer Vision tasks will be used?
- c) Mention two advantages of using AI in agriculture.

13. "Computer Vision is transforming healthcare, education and transportation." Justify the statement with suitable examples from daily life.