EXAM PATTERN EXERCISE

Including Competency Based Questions

Part I

Multiple Choice Questions

1. **The computer vision program is based on _____.**
   (a) Speaking
   (b) Reading
   (c) Understanding voice command
   (d) Understanding the content of digital images

2. **Which one of these is not an example of computer vision?**
   (a) Image classification (b) Speech segmentation
   (c) Image segmentation (d) Object detection

3. **Which of the following is an example of image classification in computer vision?**
   (a) Price prediction
   (b) Photo albums in smartphones
   (c) Trend setting
   (d) Lock in smartphone

4. **Which of the following is an Applications of Computer Vision?**
   (a) Robotics (b) Medicine
   (c) Security (d) All of these

5. **_____ is the process of finding instances of real-world objects in images or videos.** SQP 2023-24
   (a) Instance segmentation
   (b) Object detection
   (c) Classification
   (d) Image segmentation

6. **In computer vision which of the following tasks is used for multiple objects?** 2024
   (a) Classification (b) Classification + Localisation
   (c) Instance Segmentation (d) Localisation

7. **What is the primary function of Lobe.ai?**
   (a) Text translation (b) Image classification
   (c) Speech recognition (d) Database management

8. **_____ means a picture element which is the smallest unit of information that makes up a picture.** SQP 2023-24
   (a) Vision (b) Pics (c) Pixel (d) Piskel

9. **The resolution of most images we use is measured in**
   (a) RGB (b) Pixels
   (c) Grayscale (d) HSV

10. **Which is the most common pixel format where this number is stored as an 8-bit integer giving a range of possible values from 0 to 255?**
    (a) Byte image (b) Resolution
    (c) Pixel (d) Grayscale

11. **Which technology is Teachable Machine built on?**
    (a) PyTorch (b) TensorFlow.js
    (c) OpenCV (d) Keras

12. **What is the primary purpose of a Convolutional Neural Network (CNN)?**
    (a) Object detection (b) Image classification
    (c) Text generation (d) Reinforcement learning

13. **Which of the following algorithms is commonly used for image classification?**
    (a) K-means clustering
    (b) Decision trees
    (c) Convolutional Neural Networks (CNN)
    (d) Support Vector Machines (SVM)

14. **Which layer type is typically used to extract local features in a CNN?**
    (a) Convolutional layer (b) Pooling layer
    (c) Fully connected layer (d) Activation layer

15. What is the purpose of the filter/kernel in a convolutional layer?
(a) To determine the number of neurons in the layer
(b) To specify the size of the feature maps
(c) To extract local features from the input data
(d) None of the above

16. What is the purpose of the pooling layer in a CNN?
(a) To reduce the spatial dimensions of the feature maps
(b) To introduce non-linearity to the network
(c) To adjust the weights and biases of the network
(d) To compute the gradients for backpropagation

17. Which activation function is commonly used in the convolutional layers of a CNN?
(a) ReLU (Rectified Linear Unit)
(b) Sigmoid
(c) Tanh (Hyperbolic Tangent)
(d) Softmax

18. Which layer is CNN is responsible for increasing the non-linear properties of the trained networks?
(a) ReLU (b) Input layer
(c) Pooling layer (d) Output layer

19. Which layer type is responsible for making final predictions in a CNN?
(a) Convolutional layer (b) Pooling layer
(c) Fully connected layer (d) Activation layer

20. What does the term "image processing" refer to in Computer Vision ? 2025
(a) Editing videos
(b) Extracting meaningful information from images
(c) Playing audio files
(d) Comiling codes

21. In Computer Vision, which of the following tasks is used for single object? 2025
(a) Object Detection (b) Classification + Localization
(c) Instance Segmentation (d) Non – Localization

Answers

1. (d)	2. (b)	3. (b)	4. (d)	5. (b)
6. (c)	7. (b)	8. (c)	9. (b)	10. (d)
11. (b)	12. (b)	13. (c)	14. (a)	15. (c)
16. (a)	17. (a)	18. (a)	19. (c)	20. (b)
21. (b)				

Statement Based Questions

1. Statement 1 Computer vision is one of the most important fields of artificial intelligence (AI)
Statement 2 It is capable of extracting meaningful information from visual data like videos and images.
(a) Both Statement 1 and Statement 2 are correct
(b) Both Statement 1 and Statement 2 are incorrect
(c) Statement 1 is correct but Statement 2 is incorrect
(d) Statement 2 is correct but Statement 1 is incorrect

2. Statement 1 Computer vision has enabled machin to detect face images of people to verify their iden Statement 2 Facebook also use facial recognition detect and tag users.
(a) Both Statement 1 and Statement 2 are correct
(b) Both Statement 1 and Statement 2 are incorrect
(c) Statement 1 is correct but Statement 2 is incorrect
(d) Statement 2 is correct but Statement 1 is incorrect

3. Statement 1 A pixel is defined as the smallest element of a digital image.
Statement 2 Pixel resolution is the total pixel count a digital image.
(a) Both Statement 1 and Statement 2 are correct
(b) Both Statement 1 and Statement 2 are incorrect
(c) Statement 1 is correct but Statement 2 is incorrect
(d) Statement 2 is correct but Statement 1 is incorrect

4. Statement 1 A Convolutional Neural Network (CNN) a type of deep learning algorithm that is particularl well-suited for image recognition and processing tasks.
Statement 2 Fully connected layer is the second lay of CNN.
(a) Both Statement 1 and Statement 2 are correct
(b) Both Statement 1 and Statement 2 are incorrect
(c) Statement 1 is correct but Statement 2 is incorrect
(d) Statement 2 is correct but Statement 1 is incorrect

5. Statement 1 Various search engines and e-commerce portals now how a new feature called image - based search using computer vision.
Statement 2 Image-based search helps in finding items, people and places by giving their sounds to th system. 202
(a) Both Statement 1 and Statement 2 are correct.
(b) Both Statement 1 and Statement 2 are incorrect.
(c) Statement 1 is correct but Statement 2 is incorrect.
(d) Statement 2 is correct but Statement 1 is incorrect.

Answers

1. (a) 2. (a) 3. (a) 4. (c) 5. (c)

Assertion & Reason Based Questions

1. Assertion (A) With the use of computer vision, autonomous vehicles can understand their environment.
Reason (R) The autonomous vehicle can navigate streets and highways on its own, swerve around obstructions, and get its passengers where they need to go safely.
(a) Both A and R are true and R is the correct explanation for A.
(b) Both A and R are true and R is not the correct explanation for A.
(c) A is true, but R is false.
(d) A is false, but R is true.

2. **Assertion (A) Image Classification involves categorising images into predefined classes or categories, such as animals, vehicles, or buildings.**
Reason (R) Image detection is identifying and classifying human actions within an image or video stream.
(a) Both A and R are true and R is the correct explanation for A.
(b) Both A and R are true and R is not the correct explanation for A.
(c) A is true, but R is false.
(d) A is false, but R is true.

3. **Assertion (A) The term used to refer to the number of pixels in an image is resolution.**
Reason (R) Resolution in an image denotes the total number of pixels it contains, usually represented as height × width. 2024
(a) Both A and R are true and R is the correct explanation for A.
(b) Both A and R are true and R is not the correct explanation for A.
(c) A is true, but R is false.
(d) A is false, but R is true.

4. **Assertion (A) Pooling layers down sample the spatial dimensions of the input, reducing the computational complexity and the number of parameters in the network.**
Reason (R) Max pooling is a common pooling operation, selecting the maximum value from a group of neighboring pixels.
(a) Both A and R are true and R is the correct explanation for A.
(b) Both A and R are true and R is not the correct explanation for A.
(c) A is true, but R is false.
(d) A is false, but R is true.

Answers

1. (a) 2. (c) 3. (a) 4. (a)

Part II

Very Short Answer Type Questions

1. **With reference to AI domain, expand the term CV.**

Ans. CV stands for Computer Vision.

2. **Which app uses face filters?**

Ans. Snapchat uses face filters.

3. **Give an example of object recognition.**

Ans. Object recognition is identifying specific instances of objects and associating them with known categories or concepts.

4. **What is the process of detecting an instance of the object, categorising it and giving each pixel a label on that basis?**

Ans. Instance segmentation

5. **It is basically the dimensions through which you can measure how many pixels are there on a screen. What is it?**

Ans. Resolution

6. **How many channels does a color image have?** SQP 2023-24

Ans. Three channels

7. **Mention any 2 features of image based on which they are characterised.**

Ans. Two features based on which images are characterised are – textures and edges.

8. **What is a kernel?**

Ans. A kernel, is a small matrix of numerical values that defines a specific operation to be performed on the input image.

Short Answer Type Questions

1. **Name the real-life applications of computer vision.**

Ans. The real-life applications of computer vision are:
- Facial recognition in smartphones
- Face filters
- Google translate app

2. **How computer vision is helping in medical imaging?**

Ans. Computer vision plays a pivotal role in medical imaging, facilitating tasks such as image analysis, diagnosis, treatment planning, and surgical guidance across various medical specialties. By analysing medical images, including X-rays, CT scans, MRIs, and ultrasound images, computer vision algorithms assist healthcare professionals in detecting abnormalities, quantifying disease progression, identifying anatomical structures, and guiding interventions.

3. **How Google translate uses computer vision?**

Ans. Google Translate employs computer vision to enable instant translation of text captured through a smartphone camera. Using optical character recognition (OCR) technology, the app recognises and extracts text from images, such as signs, menus, or documents. Then, machine translation algorithms process the extracted text to provide translations in real-time, facilitating communication across languages.

4. **Face lock feature of a smartphone is an example of computer vision. Briefly discuss this feature.** 2023

Ans. The face lock feature of a smartphone is indeed an example of computer vision technology in action. It

Multiple Choice Questions

1. Which of the following images will be the sharpest?
   (a) 300 ppi
   (b) 100 ppi
   (c) 600 ppi
   (d) 75 ppi
2. The task performed by computer vision for single object is:
   (a) Classification and localisation
   (b) Object detection and instar
   (c) Filtering
   (d) Both (a) and (b)
3. The task/s that facial recognition models perform is
   (a) verification
   (b) recognition
   (c) both (a) and (b)
   (d) image enhancement
4. The final layer of a CNN is called the
   (a) fully connected layer
   (b) convolution layer
   (c) pooling layer
   (d) None of these
5. Which among the following images around us are made up of 3 primary colors c
   (a) Moving
   (b) Static
   (c) Monochrome
   (d) Colored
6. Which of the following is commonly used in applications such as image retrieval systems?
   (a) Instance Segmentation
   (b) Object detection
   (c) Localization
   (d) Classification