



MACHINE LEARNING FOR SOIL AND CROP MANAGEMENT

Assignment- Week 8

TYPE OF QUESTION: MCQ/MSQ

Number of questions: 15

Total mark: 15 X 1 = 15

QUESTION 1:

In VGG16 architecture, how many Convolutional layers are there?

- a. 16
- b. 14
- c. 13
- d. 12

Correct Answer: c

Detailed Solution 13 Convolutional layers in VGG16 architecture

QUESTION 2:

_____ denotes how many steps we are moving in each steps in convolution

- a. Stride
- b. Kernel
- c. Padding
- d. None of these

Correct Answer: a

Detailed Solution: Stride: It denotes how many steps we are moving in each step in convolution. Kernel: It moves across the image, scans each pixel and converts it into smaller image. Padding: It extends the area of an image in which a CNN processes.

QUESTION 3:

_____ architecture uses depth-wise separable convolutions for image classification

- a. Inception
- b. Xception
- c. Resnet-50
- d. VGC-16



Correct Answer: b

Detailed Solution: Xception architecture uses depth-wise separable convolutions for image classification

QUESTION 4:

An _____ is a term used in machine learning and indicates the number of passes of the entire training dataset the machine learning algorithm has completed

- a. Training
- b. Convolution
- c. Epoch
- d. Pooling

Correct Answer: c

Detailed Solution: An epoch is a term used in machine learning and indicates the number of passes of the entire training dataset the machine learning algorithm has completed

QUESTION 5:

The _____ is the weight a drone or unmanned aerial vehicle (UAV) can carry.

- a. Capacity
- b. Payload
- c. Power system
- d. None of these

Correct Answer: b

Detailed Solution: The payload is the weight a drone or unmanned aerial vehicle (UAV) can carry. It is usually counted outside of the weight of the drone itself and includes anything additional to the drone – such as extra cameras, sensors, or packages for delivery.



QUESTION 6:

What is the full form of UAV used in precision agriculture?

- a. Unmanned Aerial Vehicle
- b. Unmanned Automated Vehicle
- c. Upgraded Automated Vehicle
- d. Upgraded Application Vehicle

Correct Answer: a

Detailed Solution: UAV: Unmanned Aerial Vehicle

QUESTION 7:

Which of the sentences are true for Recurrent Neural network (RNN)?

- a. A type of ANN
- b. Uses sequential data or time series data Machine learning
- c. Used for ordinal or temporal problems
- d. All of the above

Correct Answer: d

Detailed Solution: RNN is a type of ANN, which uses sequential data or series data. It is commonly used for ordinal or temporal problems

QUESTION 8:

_____ share the same weight parameter within each layer of the network (adjusted by backpropagation).

- a. Feedforward networks
- b. Recurrent Neural Network
- c. Neural Network
- d. All of the above



Correct Answer: b

Detailed Solution: Recurrent Neural Network share the same weight parameter within each layer of the network (adjusted by backpropagation).

QUESTION 9:

Which of the following operations can be done with the application of drones?

- a. Obtain information about land's soil conditions
- b. Calculate vegetation index, detect weeds, and identify pests and infections
- c. Monitor the movements of cattle
- d. All of the above

Correct Answer: d

Detailed Solution: Survey of the field using different sensors i.e., hyperspectral/ Multispectral/ Thermal/ RGB, all the above parameters can be monitored. It is very useful tool for precision agriculture which can assist in Identifying the healthy crops, bacterial/ fungal attack in crops, weed detection, soil analysis.

QUESTION 10:

Which of the following statement is not correct?

- a. RNN are able to map one input to one output only
- b. In RNN, inputs and outputs can vary in length
- c. Different types of RNNs are used for different use cases, such as music generation and machine translation
- d. RNN leverage backpropagation through time algorithm to determine the gradients

Correct Answer: a



Detailed Solution: RNN can perform one-to-many, many-to-one, and many-to-many mappings.

QUESTION 11:

BPTT algorithm is used by which of the following neural network?

- a. ANN
- b. RNN
- c. CNN
- d. All of the above

Correct Answer: b

Detailed Solution: Backpropagation Through Time (BPTT) is the application of the Backpropagation training algorithm to recurrent neural network (RNN) applied to sequence data.

QUESTION 12:

_____ are designed to handle sequential input data, however it do not necessarily process the data in order.

- a. CNN
- b. RNN
- c. ResNet-50
- d. Transformer

Correct Answer: d

Detailed Solution: Like RNN, transformers are designed to handle sequential input data, such as natural language, for tasks such as translation and text summarization, However, unlike RNNs, transformers do not necessarily process the data in order. Rather, the attention mechanism provides context for any position in the input sequence



QUESTION 13:

_____ have been processed to apply corrections for optical distortions from the sensor system, and apparent changes in the position of ground objects caused by the perspective of the sensor view angle and ground terrain.

- a. Raw Aerial images
- b. Raw Satellite images
- c. Orthorectified images
- d. None of the above

Correct Answer: c

Detailed Solution: Orthorectified images have been processed to apply corrections for optical distortions from the sensor system, and apparent changes in the position of ground objects caused by the perspective of the sensor view angle and ground terrain.

QUESTION 14:

The mechanism of employing similar pixels in training and prediction and ignoring dissimilar pixels is called the _____ mechanism.

- a. Training
- b. Mimics
- c. self-attention
- d. Attention

Correct Answer: c

Detailed Solution: The mechanism of employing similar pixels in training and prediction and ignoring dissimilar pixels is called the self-attention. It helps to relate different positions of a



single sequence of image patches in order to gain a more vivid representation of the whole image

QUESTION 15:

What is the correct representation of Precision?

- a. $2 \times (\text{Recall} \times \text{Precision}) / (\text{Recall} + \text{Precision})$
- b. $\text{True Positives} / (\text{True Positives} + \text{False Positives})$
- c. $\text{True Positives} / (\text{True Positives} + \text{False Negatives})$
- d. None of the above

Correct Answer: b

Detailed Solution: Precision = True Positives / (True Positives+ False Positives)