Started on	Saturday, 2 March 2024, 10:30 AM
State	Finished
Completed on	Saturday, 2 March 2024, 11:12 AM
Time taken	41 mins 35 secs
Marks	8.66/9.99
Grade	**8.67** out of 10.00 (**87**%)

Question **1**

Correct

Mark 0.67 out of 0.67

Which deep learning architecture introduced residual connections to address the vanishing gradient problem?

- VGG
- ResNet ✔
- DenseNet
- EfficientNet

Your answer is correct.

The correct answer is:
ResNet

Question **2**

Correct

Mark 0.67 out of 0.67

The VGG architecture is known for its:

- Skip connections
- Residual connections
- Heavy parameter sharing ✔
- Dense connections

Your answer is correct.

The correct answer is:
Heavy parameter sharing

Question **3**

Incorrect

Mark 0.00 out of 0.67

DenseNet is unique for its use of:

- Residual connections
- Dense connections
- Skip connections ✖
- Squeeze-and-Excitation blocks

Your answer is incorrect.

The correct answer is:
Dense connections

Question **4**

Incorrect

Mark 0.00 out of 0.67

Which deep learning model is characterized by its optimal use of model parameters, leading to better performance with fewer parameters? (multiple options may be correct)

- VGG
- ResNet
- EfficientNet ✔
- ResNeXt ✖

Your answer is incorrect.

The correct answer is:
EfficientNet

Question **5**

Correct

Mark 0.67 out of 0.67

ResNeXt is an extension of the ResNet architecture and is specifically designed to improve: (multiple options may be correct)

- Spatial efficiency
- Temporal efficiency
- Parameter efficiency ✔
- Feature efficiency

Your answer is correct.

The correct answer is:
Parameter efficiency

Question **6**

Correct

Mark 0.67 out of 0.67

Which deep learning model employs a combination of depth-wise separable convolutions and a compound scaling method for optimal performance across different scales? (multiple options may be correct)

- [ ] VGG
- [ ] ResNet
- [ ] DenseNet
- [x] EfficientNet ✔

Your answer is correct.

The correct answer is:
EfficientNet

Question **7**

Correct

Mark 0.67 out of 0.67

Which layer is responsible for transforming raw input data into a format suitable for further processing in a neural network?

- ( ) Convolutional layer
- ( ) ReLu layer
- ( ) Pooling layer
- (•) Input layer ✔

Your answer is correct.

The correct answer is:
Input layer

Question **8**

Correct

Mark 0.67 out of 0.67

The primary purpose of a ReLu (Rectified Linear Unit) layer in a neural network is to:

- (•) Introduce non-linearity ✔
- ( ) Reduce the spatial dimensions
- ( ) Summarize feature maps
- ( ) Normalize input values

Your answer is correct.

The correct answer is:
Introduce non-linearity

Question **9**

Correct

Mark 0.67 out of 0.67

Softmax activation is commonly used in the output layer of a neural network for:

- Feature extraction
- Image convolution
- Multiclass classification ✔
- Dimensionality reduction

Your answer is correct.

The correct answer is:
Multiclass classification

Question **10**

Correct

Mark 0.67 out of 0.67

Millimeter-wave (mm wave) devices are commonly utilized for which of the following applications? (multiple options may be correct)

- Audio processing
- Gesture recognition ✔
- localization/tracking ✔
- imaging ✔
- Optical communication

Your answer is correct.

The correct answers are:
Gesture recognition,

localization/tracking,

imaging

Question **11**

Correct

Mark 0.67 out of 0.67

How do millimeter-wave radios perceive the environment?

- Through sound waves
- By analyzing visible light
- Using electromagnetic waves ✔
- Through magnetic fields

Your answer is correct.

The correct answer is:
Using electromagnetic waves

Question **12**

Correct

Mark 0.67 out of 0.67

What is the primary purpose of load balancing in a network environment?

- Minimizing hardware costs
- Equal distribution of computational workloads ✔
- Maximizing data storage
- Increasing network latency

Your answer is correct.

The correct answer is:
Equal distribution of computational workloads

Question **13**

Correct

Mark 0.67 out of 0.67

What is the primary advantage of using optical fibers in communication?

- Greater electrical conductivity
- Higher susceptibility to interference
- Faster data transmission ✔
- Lower installation cost

Your answer is correct.

The correct answer is:
Faster data transmission

Question **14**

Correct

Mark 0.67 out of 0.67

In graded-index fibers, how does light propagation differ from step-index fibers?

- Light travels in straight lines
- Light follows a curved path
- Light travels at a constant speed
- Light undergoes varying refractive index within the core ✔

Your answer is correct.

The correct answer is:
Light undergoes varying refractive index within the core

Question **15**

Correct

Mark 0.67 out of 0.67

What role does Deep Learning play in Optical Communications?

- Enhancing fiber manufacturing processes
- Improving human perception of optical signals
- Optimizing data encryption in optical networks
- Predicting and managing optical network performance ✔

Your answer is correct.

The correct answer is:
Predicting and managing optical network performance