**1.**

Question 1

**What is an example of a Univariate time series?**

1 point

**Hour by hour temperature**

**Hour by hour weather**

**Baseball scores**

**Fashion items**

**2.**

Question 2

**What is an example of a Multivariate time series?**

1 point

**Baseball scores**

**Hour by hour temperature**

**Fashion items**

**Hour by hour weather**

**3.**

Question 3

**What is imputed data?**

1 point

**A good prediction of future data**

**A projection of unknown (usually past or missing) data**

**Data that has been withheld for various reasons**

**A bad prediction of future data**

**4.**

Question 4

**A sound wave is a good example of time series data**

1 point

True

False

**5.**

Question 5

**What is Seasonality?**

1 point

**A regular change in shape of the data**

**Data that is only available at certain times of the year**

**Weather data**

**Data aligning to the 4 seasons of the calendar**

**6.**

Question 6

**What is a trend?**

1 point

**An overall consistent upward direction for data**

**An overall consistent flat direction for data**

**An overall consistent downward direction for data**

**An overall direction for data regardless of direction**

**7.**

Question 7

**In the context of time series, what is noise?**

1 point

**Unpredictable changes in time series data**

**Data that doesn’t have seasonality**

**Sound waves forming a time series**

**Data that doesn’t have a trend**

**8.**

Question 8

**What is autocorrelation?**

1 point

**Data that doesn’t have noise**

**Data that automatically lines up in trends**

**Data that automatically lines up seasonally**

**Data that follows a predictable shape, even if the scale is different**

**9.**

Question 9

**What is a non-stationary time series?**

1 point

**One that moves seasonally.**

**One that is consistent across all seasons.**

**One that has a disruptive event breaking trend and seasonality.**

**One that has a constructive event forming trend and seasonality.**

**1.**

Question 1

**What is a windowed dataset?**

1 point

**The time series aligned to a fixed shape**

**A fixed-size subset of a time series**

**There’s no such thing**

**A consistent set of subsets of a time series**

**2.**

Question 2

**What does ‘drop\_remainder=True’ do?**

1 point

**It ensures that all rows in the data window are the same length by adding data**

**It ensures that all data is used**

**It ensures that all rows in the data window are the same length by cropping data**

**It ensures that the data is all the same shape**

**3.**

Question 3

**What’s the correct line of code to split an n column window into n-1 columns for features and 1 column for a label**

1 point

**dataset = dataset.map(lambda window: (window[n-1], window[1]))**

**dataset = dataset.map(lambda window: (window[:-1], window[-1:]))**

**dataset = dataset.map(lambda window: (window[-1:], window[:-1]))**

**dataset = dataset.map(lambda window: (window[n], window[1]))**

**4.**

Question 4

**What does MSE stand for?**

1 point

**Mean Slight error**

**Mean Second error**

**Mean Series error**

**Mean Squared error**

**5.**

Question 5

**What does MAE stand for?**

1 point

**Mean Average Error**

**Mean Advanced Error**

**Mean Absolute Error**

**Mean Active Error**

**6.**

Question 6

**If time values are in time[], series values are in series[] and we want to split the series into training and validation at time split\_time, what is the correct code?**

1 point

**time\_train = time[split\_time]**

**x\_train = series[split\_time]**

**time\_valid = time[split\_time:]**

**x\_valid = series[split\_time:]**

**time\_train = time[:split\_time]**

**x\_train = series[:split\_time]**

**time\_valid = time[split\_time]**

**x\_valid = series[split\_time]**

**time\_train = time[split\_time]**

**x\_train = series[split\_time]**

**time\_valid = time[split\_time]**

**x\_valid = series[split\_time]**

**time\_train = time[:split\_time]**

**x\_train = series[:split\_time]**

**time\_valid = time[split\_time:]**

**x\_valid = series[split\_time:]**

**7.**

Question 7

**If you want to inspect the learned parameters in a layer after training, what’s a good technique to use?**

1 point

**Run the model with unit data and inspect the output for that layer.**

**Assign a variable to the layer and add it to the model using that variable. Inspect its properties after training.**

**Decompile the model and inspect the parameter set for that layer.**

**Iterate through the layers dataset of the model to find the layer you want.**

**8.**

Question 8

**How do you set the learning rate of the SGD optimizer?**

1 point

**Use the learning\_rate property**

**Use the Rate property**

**You can’t set it**

**Use the RateOfLearning property**

**9.**

Question 9

**If you want to amend the learning rate of the optimizer on the fly, after each epoch. What do you do?**

1 point

**Use a LearningRateScheduler and pass it as a parameter to a callback**

**Callback to a custom function and change the SGD property**

**Use a LearningRateScheduler object in the callbacks namespace and assign that to the callback**

**You can’t set it**

**1.**

Question 1

**If X is the standard notation for the input to an RNN, what are the standard notations for the outputs?**

1 point

**Y**

**H**

**Y(hat) and H**

**H(hat) and Y**

**2.**

Question 2

**What is a sequence to vector if an RNN has 30 cells numbered 0 to 29**

1 point

**The total Y(hat) for all cells**

**The Y(hat) for the last cell**

**The average Y(hat) for all 30 cells**

**The Y(hat) for the second cell**

**3.**

Question 3

**What does a Lambda layer in a neural network do?**

1 point

**Pauses training without a callback**

**Allows you to execute arbitrary code while training**

**There are no Lambda layers in a neural network**

**Changes the shape of the input or output data**

**4.**

Question 4

**What does the axis parameter of tf.expand\_dims do?**

1 point

**Defines the axis around which to expand the dimensions**

**Defines the dimension index at which you will expand the shape of the tensor**

**Defines the dimension index to remove when you expand the tensor**

**Defines if the tensor is X or Y**

**5.**

Question 5

**A new loss function was introduced in this module, named after a famous statistician. What is it called?**

1 point

**Hubble loss**

**Huber loss**

**Hawking loss**

**Hyatt loss**

**6.**

Question 6

**What’s the primary difference between a simple RNN and an LSTM**

1 point

**LSTMs have a single output, RNNs have multiple**

**LSTMs have multiple outputs, RNNs have a single one**

**In addition to the H output, RNNs have a cell state that runs across all cells**

**In addition to the H output, LSTMs have a cell state that runs across all cells**

**7.**

Question 7

**If you want to clear out all temporary variables that tensorflow might have from previous sessions, what code do you run?**

1 point

**tf.cache.clear\_session()**

**tf.keras.clear\_session**

**tf.keras.backend.clear\_session()**

**tf.cache.backend.clear\_session()**

**8.**

Question 8

**What happens if you define a neural network with these two layers?**

**tf.keras.layers.Bidirectional(tf.keras.layers.LSTM(32)),**

**tf.keras.layers.Bidirectional(tf.keras.layers.LSTM(32)),**

**tf.keras.layers.Dense(1),**

1 point

**Your model will fail because you need return\_sequences=True after the first LSTM layer**

**Your model will compile and run correctly**

**Your model will fail because you have the same number of cells in each LSTM**

**Your model will fail because you need return\_sequences=True after each LSTM layer**

**1.**

Question 1

**How do you add a 1 dimensional convolution to your model for predicting time series data?**

1 point

**Use a 1DConvolution layer type**

**Use a ConvolutionD1 layer type**

**Use a Conv1D layer type**

**Use a 1DConv layer type**

**2.**

Question 2

**What’s the input shape for a univariate time series to a Conv1D?**

1 point

**[1, None]**

**[None, 1]**

**[]**

**[1]**

**3.**

Question 3

**You used a sunspots dataset that was stored in CSV. What’s the name of the Python library used to read CSVs?**

1 point

**CommaSeparatedValues**

**CSV**

**PyFiles**

**PyCSV**

**4.**

Question 4

**If your CSV file has a header that you don’t want to read into your dataset, what do you execute before iterating through the file using a ‘reader’ object?**

1 point

**next(reader)**

**reader.next**

**reader.read(next)**

**reader.ignore\_header()**

**5.**

Question 5

**When you read a row from a reader and want to cast column 2 to another data type, for example, a float, what’s the correct syntax?**

1 point

**float f = row[2].read()**

**float(row[2])**

**You can’t. It needs to be read into a buffer and a new float instantiated from the buffer**

**Convert.toFloat(row[2])**

**6.**

Question 6

**What was the sunspot seasonality?**

1 point

**11 years**

**4 times a year**

**22 years**

**11 or 22 years depending on who you ask**

**7.**

Question 7

**After studying this course, what neural network type do you think is best for predicting time series like our sunspots dataset?**

1 point

**RNN / LSTM**

**A combination of all other answers**

**Convolutions**

**DNN**

**8.**

Question 8

**Why is MAE a good analytic for measuring accuracy of predictions for time series?**

1 point

**It doesn’t heavily punish larger errors like square errors do**

**It punishes larger errors**

**It biases towards small errors**

**It only counts positive errors**