NUI Galway
OÉ Gaillimh

SAMPLE – 6 QUESTIONS OF MCQ

Course Instance Code(s)	1MAO, 1MAI, 1CSD, SPE
Exam(s)	MSc in Computer Science - Artificial Intelligence - Online
	MSc in Computer Science - Artificial Intelligence
	MSc in Computer Science - Data Analytics
	Structured PhD
Module Code(s)	CT5165, CT5170
Module(s)	Principles of Machine Learning
	Principles of Machine Learning - Online
External Examiner(s)	Dr John Woodward
Internal Examiner(s)	*Prof. Michael Madden
	Dr Patrick Mannion

Instructions:	You must answer Question 1 (compulsory MCQ).
	You must also answer any 3 questions of the 4 other questions (the questions numbered 2-5).
	You must hand up this exam paper to the invigilator at the end of the exam.

Duration	2 hours
No. of Pages	(#)
Discipline(s)	Computer Science
Course Co-ordinator(s)	Dr Frank Glavin (CSD), Dr Matthias Nickles (MAI),
	Dr James McDermott (MAO)

Requirements:

Release in Exam Venue	Yes [ ]	No [✓]
MCQ Answersheet	Yes [ ]	No [✓]
Handout	None	
Statistical/ Log Tables	None	
Cambridge Tables	None	
Graph Paper	None	
Log Graph Paper	None	
Other Materials	None	
Graphic material in colour	Yes [ ]	No [✓]

[PTO]

Question 1 – Multiple Choice Questions (MCQ) – 25 marks

*N.B. this question is **mandatory**. You must mark one answer only for each of the 25 multiple choice questions below, by placing an X in the relevant box. You must mark your answers to the MCQ directly on this exam paper (not in your exam script) and hand up this exam paper at the end. Each MCQ question with the correct answer marked (and no others marked) is worth 1 mark. This MCQ does not have negative marking.*

You must hand up the entire exam paper to the invigilator at the end of the exam along with your exam script. If you do not hand up this exam paper with your MCQ answers to the invigilator at the end of the exam, with your student ID filled in, you will not receive any marks for Question 1.

This sample has 6 questions, but the real MCQ will have 25.

Student ID: _____

Q1.1: When deciding how to partition a dataset to create a new decision node during decision tree learning, what quantity may be calculated to compare the discriminatory power of the candidate attributes?
  ☐ Cardinality
  ☐ Entropy
  ☐ Information gain
  ☐ Partition coefficient

Q1.2: A classification algorithm is used to learn _____:
  ☐ a hypothesis which predicts the value of an independent variable, given a dependent variable
  ☐ a hypothesis which predicts a continuous value, given a set of attributes
  ☐ a hypothesis which predicts a target class, given a set of attributes
  ☐ a hypothesis which can be used to predict values in regression tasks

Q1.3: In which of the following situations would linear regression NOT be a good algorithm choice?
  ☐ The target values are negative numbers
  ☐ You have a very large number of training cases relative to the number of attributes
  ☐ The input data are categorical values
  ☐ The input data has multiple attributes

Q1.4: Which of the following ML paradigms use rewards to guide an algorithm during learning?
  ☐ Supervised Learning
  ☐ Reinforcement Learning
  ☐ Unsupervised Learning
  ☐ All of the other options use rewards to guide learning

[PTO]

Q1.5: If we perform 10-fold cross validation on a dataset with 300 cases, how many cases will be used for training in each fold:
- ☐ 10
- ☐ 30
- ☐ 270
- ☐ 200

Q1.6: If your original dataset had two attributes, how many attributes would the transformed dataset have for second-order polynomial regression?
- ☐ 2
- ☐ 4
- ☐ 5
- ☐ 3

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