GIET MAIN CAMPUS AUTONOMOUS GUNUPUR – 765022
B. Tech Degree Examinations, December – 2020
(Seventh Semester)
BECPE 7045 / BEIPE 7045 –
ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING
(AEI & ECE)

Time: 2 hrs   Maximum: 50 Marks

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions)   **(1 x 10 = 10 Marks)**

Q.1. Answer **_ALL_** questions   [CO#]   [PO#]

a. Which of the following statements is true when you use 1×1 convolutions in a CNN?   1   2

  (i) It can help in dimensionality reduction   (ii) It can be used for feature pooling

(iii) It suffers less overfitting due to small kernel size   (iv) All of the above

b. Identify the following activation function :   1   2
$\varphi(V) = Z + (1/ 1 + \exp(- x * V + Y))$,Z, X, Y are parameters
(i) Step function   (ii) Ramp function
(iii) Sigmoid function   (iv) Gaussian function

c. Which of the following are comprised within AI?   1   2
  (i) Machine Learning   (ii) Deep Learning
(iii) Both 1 and 2   (iv) All of the above

d. Which of the mentioned human behavior does the AI aim to mimic?   1   3
  (i) Thinking   (ii) Sleeping
  (iii) Eating   (iv) None of the above

e. "In AI, we study the whole universe by dividing it into two components." What are these two components?   2   2
  (i) Agent and Environment   (ii) Sky and Land
(iii) Yes or No   (iv) None of the above

f. Which of the following is a widely used and effective machine learning algorithm based on the idea of bagging?   1   2
  (i) Decision Tree   (ii) Regression
(iii) Classification   (iv) Random Forest

g. Why is second order differencing in time series needed?   2   3
  (i) To remove stationarity   (ii) To find the maxima or minima at the local point
  (iii) Both A and B - answer   (iv) None of the above

h. When performing regression or classification, which of the following is the correct way to preprocess the data?   2   2
  (i) Normalize the data → PCA → training   (ii) PCA → normalize PCA output → training
(iii) Normalize the data → PCA → normalize PCA output → training   (iv) None of the above

i. Supervised learning and unsupervised clustering both require at least one   1   3
   (i) hidden attribute   (ii) output attribute
   (iii) input attribute   (iv) categorical attribute

j. The average positive difference between computed and desired outcome values   2   1
   (i) root mean squared error   (ii) mean squared error
   (iii) mean absolute error   (iv) mean positive error

PART – B: (Short Answer Questions)   (2 x 5 = 10 Marks)

Q.2. Answer *ALL* questions

		[CO#]	[PO#]
a.	What do you mean by rationality of an agent?	1	2
b.	Define feature engineering?	2	3
c.	How do classification and regression differ?	3	2
d.	What are advantages and disadvantages of using neural networks?	3	2
e.	What are the applications of AI?	4	3

PART – C: (Long Answer Questions)   (6 x 5 = 30 Marks)

Answer *ANY FIVE* questions

		Marks	[CO#]	[PO#]
3.	Explain the LeNet architecture.	(6)	2	3
4.	Define Artificial Intelligence. Explain the techniques of A.I. Also describe the characteristics of Artificial Intelligence.	(6)	1	2
5.	Differentiate between Supervised, Unsupervised and Reinforcement Learning with examples	(6)	1	2
6.	What is SVM in machine learning? What are the classification methods that SVM can handle?	(6)	1	3
7.	Explain the k-Means Algorithm with an example.	(6)	1	2
8.	Define clustering. What are the different types of clustering explain in detail?	(6)	1	2
9.	List out the different steps involved in reinforcement learning.	(6)	1	2
10.	What is deep learning discuss its importance?	(6)	1	2

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