S.No. : 334 BAI3503

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Following Paper ID and Roll No. to be filled in your Answer Book.

PAPER ID : 33710 Roll No. | | | | | | | | | | |

B. Tech Examination 2024-25

(Odd Semester)

ARTFICIAL NEURAL NETWORK

Time : Three Hours] *[Maximum Marks : 60*

Note :– Attempt all questions.

SECTION–A

1. Attempt all parts of the following : $8 \times 1 = 8$

   (a) What is neural network? Define.

   (b) What is activation function? Define.

   (c) Define the term perception.

   (d) Differintate between supervised and unsupervised learning.

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(e) How many inputs does a perception take if it has 3 weights and 1 bias?

(f) How many activation functions are applied in a network wth 3 hidden layers?

(g) Define the term 'Directed graph'.

(h) What is cross validation?

SECTION – B

2. Attempt any two parts of the following : $2 \times 6 = 12$

(a) What are the different neural network architectures? Explain with suitable diagrams.

(b) Explain the following :

(i) Hebbian learning

(ii) Memory based learning

(c) What is credit assignment problem in neural network? Explain in details.

(d) What is adaptive filtering? Explain different adaptive filtering problems.

SECTION – C

Note:- Attempt all questions. Attempt any two parts from each question. $8 \times 5 = 40$

3. (a) Write down least mean square algorithm for training the perceptions.

(b) What is perception convergence algorithm? Explain in detail.

(c) Explain the concept of Bayes classifier in detail.

4. (a) Explain the steps of back propagation algorithm.

(b) What is Hessian matrix? Explain in detail.

(c) Write a note on the following:

(i) Hopfield models

5. (a) Write short notes on the following :

(i) Neuro dynamical models

(ii) Renurrent network paradigm

(b) What are the network pruning techniques? Explain in detail.

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(c) What are the attractors in neurodynamical systems? Explain different types of attractors.

6. (a) Explain the concept of accelerated convergence with suitable examples.

(b) What is learning rate annealing? Explain the concept in detail.

(c) What is feature detection? Explain various strategies of feature detection in details.

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