

K. J. Somaiya Institute of Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

Jan / Feb 2025

~~May/June 20~~ / ~~Nov - Dec 2024~~ ~~July/Aug 20~~ / ~~Feb - March 20~~

(B. Tech / M. Tech.) Program: EXTC Scheme I/II/III/IV/ V/VI/VII/VIII

~~Regular~~ Supplementary Examination: ~~FY/SY/TY/LY~~ Semester: ~~I/II/III/IV/V/VI/VII/VIII~~ ✓

Course Code: EXDLC7041 and Course Name: Neural Networks and Deep Learning

Date of Exam: ~~30/11/2024~~

Duration: 02 Hours 30 Min.

Max. Marks: 60

31-01-25

Instructions:

- (1) All questions are compulsory.
- (2) Draw neat diagrams wherever applicable.
- (3) Assume suitable data, if necessary.

Q. No.	Question	Max. Marks	CO	BT level
Q 1	Solve any two questions out of three: (05 marks each)	10		
a)	What is perceptron? What are the different types of perceptron? Differentiate between biological neuron and artificial neuron.	5	1	U
b)	Draw and interpret function of each component in LSTM	5	5	U
c)	Explain steps, Plots, Formulas, advantages, disadvantages of Adam optimization technique	5	2	U
Q 2	Solve any two questions out of three: (05 marks each)	10		
a)	Compare Resnet and Alexnet pretrained CNN	5	4	U
b)	Explain underfitting and overfitting in machine learning, explain how to deal with it.	5	3	U
c)	List Applications of Deep Learning. Explain one application in detail.	5	6	U
Q.3	Solve any two questions out of three. (10 marks each)	20		
a)	State and prove perceptron Converge Theorem	10	1	U
b)	Explain the use of FC layer and Pooling Layer in CNN	10	5	U
c)	Find New Weights of the network shown below using the Gradient Descent Method for Error calculation. (Solve only one Iteration).	10	3	AP

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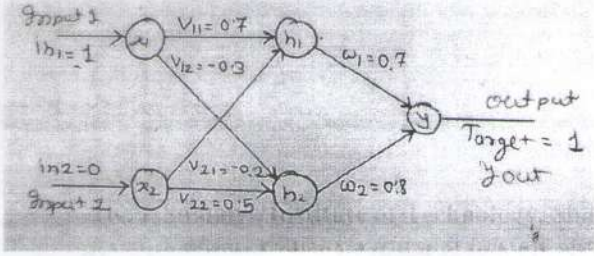
Course Code: EXDLC7041 and Course Name: Neural Networks and Deep Learning

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Q.4	Solve any two questions out of three. (10 marks each)	20		
a)	Model accuracy or Model performance, which one will you prefer and interpret why?	10	4	U
b)	Distinguish the contrast between Data Augmentation, L1 and L2 Regulation Strategy.	10	2	U
c)	What will be the dimensions of the output activation if a convolution filter of dimension 3 x 3 is applied over an input image of dimension 32 x 32 with stride = 2 and no padding?	10	6	U
