	of Questions : 4] SEAT No. :		
PE-241	[Total No. of Pages : 2		
	[6580]-602		
B.E. (Information Technology) (Insem)			
DEEP LEARNING			
(2019 Pattern) (Semester - VII) (414443)			
Time : 1 F	Hour] [Max. Marks : 30		
	ons to the candidates:		
1)	Answer Q.1 or Q.2, Q.3 or Q.4		
2)	Assume suitable data, jf Necessary.		
3)	Neat diagrams must be drawn wherever necessary.		
4)	Figures to the right indicate full marks.		
Q1) a)	Draw & explain diagram of an artificial neuron in a multilayer perceptron		
_	neural network. Write mathematical expressions for all activation functions.		
	[5]		
4.			
b)	Explain in detail the concept of <i>mini-batch</i> Differentiate between SGD and <i>mini-batch</i> . [5]		
	and mini-batch.		
c)	Why regularization is required? Differentiate between L1 and L2		
- ,	regularization. [5]		
	OR		
	8. S.		
Q2) a)	Define the term hyperparameter and list all hyperparameters and their		
2-) ()	usage range of values with units. [5]		
b)	What is a gradient? Explain mathematically the conditions for vanishing		
~	or exploding gradient? [5]		
c)	List commonly used optimization algorithms. Explain any one in detail with suitable diagrams. [5]		
	26.		
	P.T.O.		

Q3) a)	Explain layered architecture of Alex-Net with relevant details.	[10]
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b) What are the types of pooling? Consider a simple 4×4 feature map and apply a 2×2 max pooling operation with a stride of 2. Show output feature map. [5]

OR

- Q4) a) What is parameter sharing related to CNN? How is it done? [5]
 - b) An input image has been converted into a matrix of size 16×16 along with a filter of size 3×3 with a Stride of 1. Determine the size of the convoluted matrix. [5]
 - c) What is the role of multiple Fully Connected (FC) Layers in CNN? Which variant of CNN uses multiple FC layers? [5]

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