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**PRESIDENCY  
UNIVERSITY**  
BENGALURU

**Department of Research & Development**  
**Mid - Term Examinations - SEPTEMBER 2024**

<b>Odd Semester:</b> Ph.D. Course Work	<b>Date:</b> 30 /09/2024
<b>Course Code:</b> CSE868	<b>Time:</b> 10:00am – 11:30am
<b>Course Name:</b> Deep Learning	<b>Max Marks:</b> 50
<b>Department:</b> CSE	<b>Weightage:</b> 25%

**Instructions:**

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

**Part A**

<b>Answer ALL the Questions. Each question carries 5 marks.</b>		<b>4Qx5M=20M</b>
<b>1</b>	<b>With a sketch explain all components of a perceptron</b>	<b>5 Marks</b>
<b>2</b>	<b>With suitable sketches Compare the activation functions Sigmoid and Tanh</b>	<b>5 Marks</b>
<b>3</b>	<b>Sketch ReLU and Leaky ReLU activation functions with necessary formulae</b>	<b>5 Marks</b>
<b>4</b>	<b>Explain how gradient descent with momentum helps to overcome local minima</b>	<b>5 Marks</b>

**Part B**

<b>Answer ALL Questions. Each question carries 15 marks.</b>		<b>2QX15M=30M</b>
<b>5</b>	<b>With a simple neural network (one input neuron and one output neuron – assume sigmoid of tanh activation function) explain back propagation algorithm. You need to use chain rule to write formula to update the weights</b>	<b>15 Marks</b>
<b>6</b>	<b>Explain vanishing gradient problem in deep neural network and remedy for this problem.</b>	<b>15 Marks</b>