JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2026

B.Tech-I Semester (CSE/IT)

COURSE CODE (2): **18B1WCI634** MAX. MARKS: **15**

COURSE NAME: **Machine Learning**

COURSE INSTRUCTOR: **Kushal Kanwar and Sandeep Kumar Patel** MAX. TIME: **1 Hour**

Note: (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

(c) Use of calculators is not allowed

<table>
<tr><th>Q.No</th><th>Question</th><th>CO</th><th>Marks</th></tr>
<tr><td>Q1</td><td>First, state the definition of Machine Learning, which involves T, P, and E. Then, draw the Table below in your answer book and fill in the missing entries.
<table>
<tr><th>T</th><th>P</th><th>E</th></tr>
<tr><td>Spam Filtering</td><td></td><td></td></tr>
<tr><td>Playing Chess</td><td></td><td></td></tr>
</table></td><td>1</td><td>1+2</td></tr>
<tr><td>Q2</td><td>Give the expression for $D_{KL}(P \,//\, Q)$. Compute $D_{KL}(P \,//\, Q)$ given P={0.50, 0.25, 0.25} and Q={0.25, 0.50, 0.25}</td><td>1</td><td>1+1</td></tr>
<tr><td>Q3</td><td>State the properties of the more-general-than-or-equal-to (<=) relation among hypotheses.</td><td>1</td><td>2</td></tr>
<tr><td>Q4</td><td>Draw the Table below in your answer book and fill in the missing entries.
<table>
<tr><th>Property</th><th>Find-S</th><th>List-Then-Eliminate</th><th>Search-And-Eliminate</th></tr>
<tr><td>No of outputs</td><td></td><td></td><td></td></tr>
<tr><td>Use of +ve Example (Yes/No)</td><td></td><td></td><td></td></tr>
<tr><td>Use of -ve Example</td><td></td><td></td><td></td></tr>
<tr><td>Requires an exhaustive list of the Hypothesis Spsce</td><td></td><td></td><td></td></tr>
</table></td><td>2</td><td>4</td></tr>
<tr><td>Q5</td><td>Given the dataset in the table below, an example is a combination of two binary attributes <attr1(Red/Blue), attr2(Circle/Square)>.
<table>
<tr><td>ex1</td><td>⟨Red, Circle⟩</td><td>Poitive</td></tr>
<tr><td>ex2</td><td>⟨Red, Square⟩</td><td>Negative</td></tr>
</table>
Apply List-Then-Eliminate to the dataset above.</td><td>2</td><td>4</td></tr>
</table>

(15)