Name : Enrolment No. :	

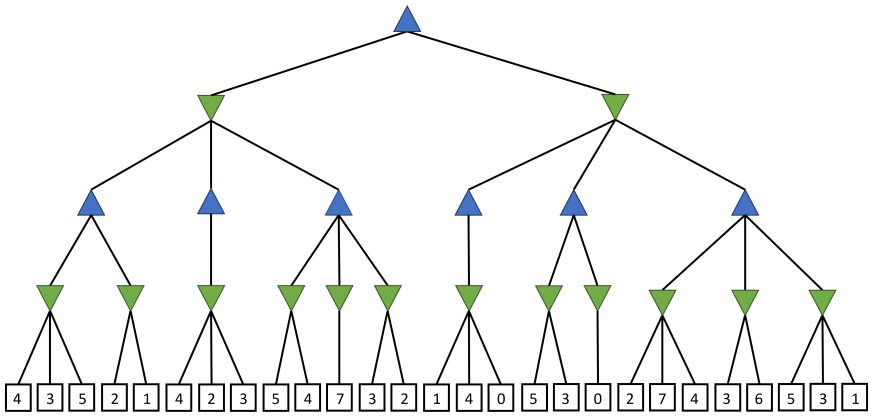
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2023

Program Name : BTech-OSS — Semester : IV
Course Name : Artificial Intelligence — Time : 3 hours
Course Code : CSEG2031 — Max. Marks : 100
No. of Page(s) : 1
Instructions : Attempt all sections.

SECTION-A

S. No.	Questions	Marks	CO
Q.1	Give PEAS (Performance, Environment, Actuators, Sensors) description for the agent in Wumpus World Puzzle.	4	CO1
Q.2	Define following terms in the view of a constraint satisfaction problem. a) Assignment, b) Complete Assignment, c) Consistent/Legal Assignment, and d) Solution	4	CO2
Q.3	Explain the following with examples. a) Existential Quantifier b) Universal Quantifier	4	CO3
Q.4	Explain each parameter in the following equation of a perceptron. $f\left(\sum w_i * x_i + b\right)$	4	CO4
Q.5	State the difference between Stemming and Lemmatization with an example.	4	CO4

SECTION-B

Q.6	Apply Alpha-Beta pruning on the following tree. 	10	CO2

<table>
<tr><td>Q.7</td><td>Using Forward chaining, determine whether Amaira will listen to music while travelling today, if all of the following statements are true.
- Amaira reads a novel while travelling.
- If it is raining, Amaira packs her umbrella.
- If Amaira does not have a novel with her, she listens to music.
- If Amaira packs extra baggage, she keeps her novel at home.
- It is raining today.</td><td>10</td><td>CO3</td></tr>
<tr><td>Q.8</td><td>Explain any four techniques in text processing with an example.</td><td>10</td><td>CO4</td></tr>
<tr><td>Q.9</td><td>Find the equation of the optimal regression line for the following data.
<table><tr><td>X</td><td>10</td><td>12</td><td>34</td><td>40</td><td>15</td><td>6</td><td>27</td><td>18</td><td>29</td><td>24</td></tr><tr><td>Y</td><td>12</td><td>14</td><td>45</td><td>66</td><td>18</td><td>9</td><td>31</td><td>22</td><td>24</td><td>25</td></tr></table>
OR

Write a note on the following.
a) Simple Linear Regression
b) Multiple Linear Regression</td><td>10</td><td>CO4</td></tr>
<tr><td colspan="4">SECTION-C</td></tr>
<tr><td>Q.10</td><td>Explain and evaluate any four uninformed search algorithms.</td><td>20</td><td>CO2</td></tr>
<tr><td>Q.11</td><td>Explain the workings of the following algorithms and compare them with each other.
a) Support Vector Machine
b) Linear Discriminant Analysis
c) k-Nearest Neighbours

OR

Explain the workings of the following algorithms and compare them with each other.
a) Logistic Regression
b) Decision Tree
c) Naive Bayes Classifier</td><td>20</td><td>CO4</td></tr>
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