UNIVERSITY COLLEGE OF ENGENEERING AND TECHNOLOGY (UCET)
VINOBA BHAVE UNIVERSITY , HAZARIBAG

MID-SEM EXAM 2022

SUBJECT : ARTIFICIAL INTELLIGENCE
SEMESTER : B.TECH -7th (CSE)
TIME:1hr. 30 min TOTAL MARKS: 20

All questions carry equal marks

SECTION – A

Attempt any two:

Q1.

a) Explain the concept of AI.

b) Explain the components of AI.

Q2.

a) Explain the elements of Knowledge Representation.
b) What is FOPL logic.

Q3.

a) Explain quantifiers with examples.
b) Solve the Crypt arithmetic problem of SEND + MORE = MONEY.

SECTION – B

Attempt Any two:

Q4.

a) Explain DFS Search algorithm with suitable example.
b) Explain A* Search algorithm with suitable example.

Q5.

a) Solve Water-Jug problem: you have given two jugs , a four-gallon one and a three-gallon one pump which has unlimited water which you can use to fill the jug , and the ground on which water may be poured. Neither jug has any measuring markings on it. How can you get exactly two gallons of water in four-gallon jug.

2l 4l Jug.

b) Explain 8-puzzle problem with example.

Q6.

Convert sentences into facts:

i) Markus was a Pompeian .
ii) All Pompeian are Romans .
iii) Caesar was a ruler
iv) All Romans were either loyal to the Caesar or hated him.
v) Everyone is loyal to someone.
vi) Someone is loyal to Everyone.
vii) Everyone is loyal to everyone.
viii) People only try to assassinate the ruler they are not loyal to.

Prove that Marcus was not loyal to Caesar using substitution method.

UCET, VBU, HAZARIBAG. (BRANCH-CSE) VII (NEW) SEM.

B.Tech 7th Semester Midterm of 2023.

Total-20 marks. Subject-Machine Learning. Time- 90 min.

<table>
<tr><th>Q.NO</th><th>Any 4 Question Form Below: -</th><th>Marks</th><th>Course Outcome</th></tr>
<tr><td>01.</td><td>What is Machine Learning? Differentiate between supervised and unsupervised training (With suitable example).</td><td>02 + 03</td><td>CO1+CO2</td></tr>
<tr><td>02.</td><td>Explain Logistic Regression in Machine Learning. Explain with Example.</td><td>05</td><td>CO1</td></tr>
<tr><td>03.</td><td>Dataset for playing cricket
<table><tr><th>Outlook</th><th>Temperature</th><th>Humidity</th><th>Windy</th><th>PlayTennis</th></tr><tr><td>Sunny</td><td>Hot</td><td>High</td><td>False</td><td>No</td></tr><tr><td>Sunny</td><td>Hot</td><td>High</td><td>True</td><td>No</td></tr><tr><td>Overcast</td><td>Hot</td><td>High</td><td>False</td><td>Yes</td></tr><tr><td>Rainy</td><td>Mild</td><td>High</td><td>False</td><td>Yes</td></tr><tr><td>Rainy</td><td>Cool</td><td>Normal</td><td>False</td><td>Yes</td></tr><tr><td>Rainy</td><td>Cool</td><td>Normal</td><td>True</td><td>No</td></tr><tr><td>Overcast</td><td>Cool</td><td>Normal</td><td>True</td><td>Yes</td></tr><tr><td>Sunny</td><td>Mild</td><td>High</td><td>False</td><td>No</td></tr><tr><td>Sunny</td><td>Cool</td><td>Normal</td><td>False</td><td>Yes</td></tr><tr><td>Rainy</td><td>Mild</td><td>Normal</td><td>False</td><td>Yes</td></tr><tr><td>Sunny</td><td>Mild</td><td>Normal</td><td>True</td><td>Yes</td></tr><tr><td>Overcast</td><td>Mild</td><td>High</td><td>True</td><td>Yes</td></tr><tr><td>Overcast</td><td>Hot</td><td>Normal</td><td>False</td><td>Yes</td></tr><tr><td>Rainy</td><td>Mild</td><td>High</td><td>True</td><td>No</td></tr></table>
From above dataset applying Decision tree classifier measure i) Entropy ii) Gini impurity and iii) Information Gain.</td><td>05</td><td>CO3</td></tr>
<tr><td>04.</td><td>State the Mathematical formulation of the SVM problem. Give an outline of the method for solving the problem.</td><td>05</td><td>CO2</td></tr>
<tr><td>05.</td><td>State the Mathematical formulation of cost function of linear regression. Define Gradient descent, Overfitting and underfitting problem of linear regression. How to draw best fit line in linear regression.</td><td>05</td><td>CO2+CO1</td></tr>
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Mid Semester Examination 2022

UCET, VBU, Hazaribagh

Subject: DMDW

Branch: CSE , VII Sem

Full Marks: 20 ***Time: 1Hour 30 Minutes***

Answer any four questions. **All questions carry equal marks.**

1. Explain the application of the data warehousing and data mining in Government. (CO1)
2. All electronics company have sales department. Sales considers four dimensions namely time, item, branch and location. The schema contains central fact table sales with two measures dollar-sold and units-sold. Design star and snowflake schema. (CO2)
3. Explain ETL of data warehousing in detail. (CO2)
4. Differentiate between OLTP and OLAP systems. (CO3)
5. Explain the steps involved in the KDD process. How is data mining different from KDD? (CO4)
6. Explain web mining in detail. Mention its related areas. (CO4)
7. Describe K-means clustering. (CO4)

UNIVERSITY COLLEGE OF ENGINEERING & TECHNOLOGY (UCET)

VBU, HAZARIBAG

MID-SEM EXAM (SEVENTH SEMESTER) 2022

Full marks: - 20 **Software Engineering (CSE)** **Duration: 1 hour 30 minutes**

Instructions:

1. Attempt any five questions.
2. All questions carry equal marks.

Q1. What do you mean by Software Engineering? Explain the layered technology approach to it. [CO2]

Q2. Explain different types of software myths. [CO3]

Q3. Define Legacy software. What are the characteristics associated with it? Discuss them briefly. [CO2]

Q4. What do you understand by the Capability Maturity Model Integration (CMMI)? Explain. [CO1]

Q5. How Software is different from Hardware? Explain the 'Bathtub Curve'. [CO2]

Q6. "Software is both a product and a vehicle that delivers a product." Justify the statement. [CO3]

Q7. Explain the generic process framework activities with respect to the Waterfall Model. [CO2]

University College of Engineering and Technology
Vinoba Bhave University, Hazaribag-825301

Cryptography
Mid Semester Examination 2022
(7th Semester CSE)

Time: 1:30 hours *Max. Marks:20*

Instruction to the candidates:

1. *Answer any four question.*
2. *All question carries equal marks.*

Q1. What is meant by cryptography? Write about Security Mechanisms in cryptography. CO1 & CO2 (1+4)

Q2. (a) Find the value of $3^{51} \bmod 5$ CO3 & CO2(2+3)

(b)Discuss the various principles involved in private and public key cryptography.

Q3. Using Hill Cipher to encipher the message "we live in a insecure world". CO3 (5)
Use the key $\begin{bmatrix} 03 & 02 \\ 05 & 07 \end{bmatrix}$

Q4. (a) Given p=19, q=23, and e=3 Use RSA algorithm to find n, $\phi(n)$ and d. CO3 (3+2)

(b) Find the value of $\phi(100)$

Q5. Explain Data Encryption standard (DES) in detail. CO2 (5)

Q6. Describe about IDEA encryption and decryption. Write the applications which use IDEA. CO2 + C01 (4+1)