| PRN | | QP Code | CS-238 |
|---|---|---|---|

**D.K.T.E. Society's TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI.**

*(An Autonomous Institute)*

## Semester End Examination - Summer 2018-19

| | | | |
|---|---|---|---|
| **Class - Program** | Third Year B.Tech. (CS) | **Day & Date** | Thursday,16/05/2019 |
| **Course Code** | CSL303 | **Time** | 10 am To 1 pm |
| **Course Title** | Machine Learning | **Max.Marks** | 100 |

***Instructions :***

1. *All Questions are compulsory; assume suitable data if necessary and mention it clearly.*
2. *Mobile phones and programmable calculators are strictly prohibited.*
3. *Writing anything on question paper(except PRN), exchange/sharing of stationery, calculator etc. are not allowed.*

---

| Que No | | Question | Marks | BL | CO |
|---|---|---|---|---|---|
| 1 | A | Identify two clusters in following data using Agglomerative Hierarchical clustering technique | 5 | 3 | 3 |

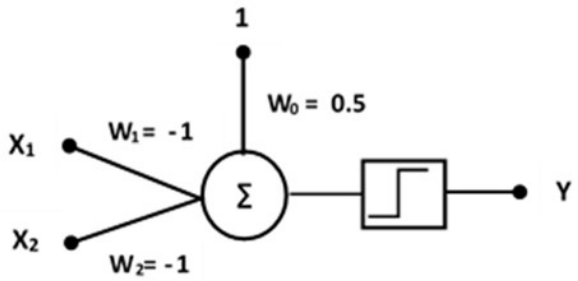
| Object | A | B | C | D | E |
|---|---|---|---|---|---|
| X1 | 4 | 9 | 13 | 40 | 46 |

| | | | | | |
|---|---|---|---|---|---|
| | | **Attempt any one of B & C** | | | |
| | B | Design root node of a Decision Tree to determine driving risk using following Data | 10 | 3 | 3 |

| Driving Risk Table | | | |
|---|---|---|---|
| Age | Car Type | Road lanes | Risk |
| < 25 | Family | 1 | High |
| < 25 | Family | 4 | Low |
| < 25 | Sports | 1 | High |
| < 25 | Sports | 4 | Low |
| > 25 | Sports | 1 | Low |
| > 25 | Family | 4 | Low |
| > 25 | Truck | 1 | Low |
| < 25 | Truck | 1 | High |
| < 25 | Truck | 4 | Low |

| | | | | | |
|---|---|---|---|---|---|
| | C | Use data in Q.1 B to predict driving risk for attributes as age < 25 ,Road lanes = 4 and Car Type = Sports, using Bayesian Classifier. | 10 | 3 | 3 |
| 2 | | **Attempt any three of A, B, C & D** | | | |
| | A | Explain learning rate in regression. | 5 | 2 | 1 |
| | B | Explain different learning techniques. | 5 | 2 | 1 |
| | C | Explain hypothesis function for multiple linear regression. | 5 | 2 | 1 |
| | D | What is gini index? How is it calculated. | 5 | 2 | 1 |
| 3 | | **Attempt any three of A, B, C & D** | | | |
| | A | Explain Content based recommender system. | 5 | 2 | 1 |
| | B | Explain the gradient decent learning algorithm for multilayer perceptron. | 5 | 2 | 1 |
| | C | How Similarity is measured in clustering Techniques? | 5 | 2 | 1 |
| | D | Explain Bayesian Classifier. | 5 | 2 | 1 |

<table>
<tr><th>Que No</th><th></th><th>Question</th><th>Marks</th><th>BL</th><th>CO</th></tr>
<tr><td>4</td><td>A</td><td>i) Calculate linear regression parameters for following data.<br><br>
<table>
<tr><td>X</td><td>Y</td></tr>
<tr><td>5</td><td>21</td></tr>
<tr><td>10</td><td>38</td></tr>
<tr><td>15</td><td>62</td></tr>
<tr><td>20</td><td>83</td></tr>
<tr><td>25</td><td>101</td></tr>
</table>
<br>ii) Predict whether a loan will be sanctioned to a person with given attributes based on given data set using K-nn with K=1.<br><br>
<table>
<tr><td>Age</td><td>Income</td><td>Cards</td></tr>
<tr><td>30</td><td>35000</td><td>2</td></tr>
</table>
<br>
<table>
<tr><td colspan="4">Training Data</td></tr>
<tr><td>Age</td><td>Income</td><td>Cards</td><td>Loan</td></tr>
<tr><td>35</td><td>35000</td><td>3</td><td>No</td></tr>
<tr><td>22</td><td>50000</td><td>2</td><td>Yes</td></tr>
<tr><td>63</td><td>200000</td><td>1</td><td>No</td></tr>
<tr><td>25</td><td>45000</td><td>2</td><td>Yes</td></tr>
<tr><td>59</td><td>175000</td><td>1</td><td>No</td></tr>
</table>
</td><td>15</td><td>3</td><td>3</td></tr>
<tr><td>5</td><td colspan="5">Attempt any two of A, B & C</td></tr>
<tr><td></td><td>A</td><td>For following confusion matrix of an animal classifier, determine accuracy, precision and recall parameters.<br><br>
<table>
<tr><td colspan="2" rowspan="2"></td><td colspan="2">Actual Class</td></tr>
<tr><td>Animal</td><td>Non Animal</td></tr>
<tr><td rowspan="2">Predicted class</td><td>Animal</td><td>15</td><td>3</td></tr>
<tr><td>Non Animal</td><td>1</td><td>12</td></tr>
</table>
<br>Comment on the classification performance of this classifier.</td><td>10</td><td>4</td><td>2</td></tr>
<tr><td></td><td>B</td><td>Analyze the following Artificial Neural with hardlimit Thresholding function and determine the logical operation it has implemented.</td><td>10</td><td>4</td><td>2</td></tr>
</table>

| Que No | | Question | Marks | BL | CO |
|---|---|---|---|---|---|
| | |  | | | |
| | C | A dataset to be used for predicting weight is given below. Is it suitable for making prediction? Why?<br><br>Height (inches) \| Weight (Kg)<br>36 \| 25<br>42 \| 38<br>48 \| 55<br>54 \| 60<br>60 \| 65 | 10 | 4 | 2 |
| 6 | | **Attempt any four of A, B, C, D & E** | | | |
| | A | What are the reasons of incorporating recommender system in information systems? | 5 | 2 | 1 |
| | B | What is machine learning? Explain architecture of machine learning system. | 5 | 2 | 1 |
| | C | What is overfitting in linear regression? How can overfitting be avoided? | 5 | 2 | 1 |
| | D | Explain activation functions used in an artificial neural network. | 5 | 2 | 1 |
| | E | What is Data Cleaning? Explain techniques used for data cleaning. | 5 | 2 | 1 |

---------- X ---------- X ----------

| PRN | | QP Code | CS-123 |
|---|---|---|---|

**D.K.T.E. Society's TEXTILE AND ENGINEERING INSTITUTE, ICHALKARANJI.**

*(An Autonomous Institute)*

**Semester End Examination - Summer 2018-19**

| Class - Program | Third YearB.Tech. (CS) | Day &Date | Saturday, 11/05/2019 |
|---|---|---|---|
| Course Code | CSL304 | Time | 10 am To 1 pm |
| Course Title | Information Security | Max.Marks | 100 |

***Instructions :***

1. *All Questions are compulsory; assume suitable data if necessary and mention it clearly.*
2. *Mobile phones and programmable calculators are strictly prohibited.*
3. *Writing anything on question paper(except PRN), exchange/sharing of stationery, calculator etc. are not allowed.*

---

| Que No | | Question | Marks | BL | CO |
|---|---|---|---|---|---|
| 1 | A | Illustrate following substitution cipher techniques<br>a. Monoalphabetic cipher<br>b. Polyalphabetic Cipher | 8 | 2 | 1 |
| | B | Compare Symmetric and Asymmetric cryptographic system? | 7 | 2 | 1 |
| 2 | A | What are the principles of public key cryptosystems? | 8 | 1 | 1 |
| | | **Attempt any one of B & C** | | | |
| | B | Explain with Block diagram, Encryption and Decryption in DES Algorithm | 7 | 2 | 1 |
| | C | Explain Block cipher design principles | 7 | 2 | 1 |
| 3 | A | Apply Diffie-Hellman key exchange algorithm to find out shared secret key for following data. q= 11, α=2, YA=9, YB=3 | 8 | 3 | 1 |
| | B | What is MAC? What are the requirements of MAC? | 7 | 1 | 2 |
| 4 | A | Explain hierarchy of Certificate Authorities (CA's). | 8 | 2 | 3 |
| | | **Attempt any one of B & C** | | | |
| | B | How are the certification authorities useful for distribution of public keys? | 7 | 1 | 3 |
| | C | What is Woo-Lam approach for authentication protocol | 7 | 1 | 3 |
| 5 | | **Attempt any one ofA&B** | | | |
| | A | What are the functions provided by S/MIME? | 8 | 1 | 4 |
| | B | What are the operations performed in PGP | 8 | 1 | 4 |
| | | **Attempt any twoof C, D & E** | | | |
| | C | Explain IPSec AH (Authentication Header) format | 6 | 2 | 4 |
| | D | Explain IPSec ESP (Encapsulating Security Payload) format | 6 | 2 | 4 |
| | E | How Key is derived from pass phrase in Pretty good privacy | 6 | 2 | 4 |
| 6 | | **Attempt any one ofA&B** | | | |
| | A | Explain SSL Handshake protocol | 8 | 2 | 4 |
| | B | Explain SSL architecture | 8 | 2 | 4 |
| | | **Attempt any twoof C, D & E** | | | |
| | C | List in detail the Key Features of Secure Electronic Transaction (SET) Protocol ?. | 6 | 1 | 4 |
| | D | What is SSL Record protocol | 6 | 1 | 4 |
| | E | What is TLS | 6 | 1 | 4 |

---------- X ---------- X ----------