TKM COLLEGE OF ENGINEERING, KOLLAM-5
Department of Computer Applications
III Semester MCA
Internal Assessment (Offline) Jan 2022
Course with Code: 20MCA 201 DATA SCIENCE &MACHINE LEARNING

Time:2Hrs **Maximum Marks: 50**

Qn. No.	PART – A Answer all questions	Marks	BL	CO
1	Explain why data science is essential today.	3	L1	1
2	List the measures of central tendency for numeric as well as categorical data and explain the information about the dataset conveyed by it.	3	L2	1
3	Write a note on quartile visualization technique.	3	L1	1
4	Explain the measures of spread and their significance in analyzing the data set.	3	L2	1
5	Explain about Ensemble Modeling.	3	L1	1
6	Distinguish between overfitting and underfitting in machine learning.	3	L1	2
7	Differentiate between supervised and unsupervised learning algorithm with example for each.	3	L1	2
8	Explain how to choose the value of k in k-NN algorithm.	3	L1	2
9	Explain why K-NN is called a lazy learner.	3	L1	2
10	State Bayes' theorem in statistics.	3	L1	2
	PART – B			
	MODULE-I			
11 a	Explain various methods for visualizing multivariate data.	5	L1	1
	OR			
b	Explain the various processes for preparing a data to perform a data science task.	5	L1	1
	MODULE 1			
12 a	Explain the data science classification and illustrate data science tasks.	5	L1	1
	OR			
b	Explain the various methods to understand data.	5	L1	1
	MODULE-II			
13a	Explain how machines learn with suitable diagrams.	5	L1	2

<table>
<tr><td>b</td><td>OR
Explain the five step process to apply learning process to real world tasks.</td><td>5</td><td>L1</td><td>2</td></tr>
<tr><td></td><td>MODULE-II</td><td></td><td></td><td></td></tr>
<tr><td>14 a</td><td>Based on the survey conducted in an institution, the students are classified based on their academic excellence, extracurricular and Co-curricular activities.
Consider the data set given.
<table>
<tr><th>A (Academic Excellence)</th><th>B(Extracurricular achievement)</th><th>C (Co-curricular achievement)</th><th>Overall Performance</th></tr>
<tr><td>8</td><td>6</td><td>7</td><td>Excellent</td></tr>
<tr><td>5</td><td>6</td><td>4</td><td>Good</td></tr>
<tr><td>7</td><td>3</td><td>4</td><td>Good</td></tr>
<tr><td>6</td><td>9</td><td>8</td><td>Excellent</td></tr>
</table>
Find the category of student with A=4, B=4 and C=8 based on the data of trained samples using KNN algorithm.

OR</td><td>5</td><td>L2</td><td>2</td></tr>
<tr><td>b</td><td>Find the probability to play golf on 15th day where conditions are, temperature=cool, humidity=high, wind=strong and outlook=sunny.
<table>
<tr><th>Day</th><th>Outlook</th><th>Temperature</th><th>Humidity</th><th>Wind</th><th>Play Golf</th></tr>
<tr><td>1</td><td>Sunny</td><td>Hot</td><td>High</td><td>Weak</td><td>No</td></tr>
<tr><td>2</td><td>Sunny</td><td>Hot</td><td>High</td><td>Strong</td><td>No</td></tr>
<tr><td>3</td><td>Overcast</td><td>Hot</td><td>High</td><td>Weak</td><td>Yes</td></tr>
<tr><td>4</td><td>Rain</td><td>Mild</td><td>High</td><td>Weak</td><td>Yes</td></tr>
<tr><td>5</td><td>Rain</td><td>Cool</td><td>Normal</td><td>Weak</td><td>Yes</td></tr>
<tr><td>6</td><td>Rain</td><td>Cool</td><td>Normal</td><td>Strong</td><td>No</td></tr>
<tr><td>7</td><td>Overcast</td><td>Cool</td><td>Normal</td><td>Strong</td><td>Yes</td></tr>
<tr><td>8</td><td>Sunny</td><td>Mild</td><td>High</td><td>Weak</td><td>No</td></tr>
<tr><td>9</td><td>Sunny</td><td>Cool</td><td>Normal</td><td>Weak</td><td>Yes</td></tr>
<tr><td>10</td><td>Rain</td><td>Mild</td><td>Normal</td><td>Weak</td><td>Yes</td></tr>
<tr><td>11</td><td>Sunny</td><td>Mild</td><td>Normal</td><td>Strong</td><td>Yes</td></tr>
<tr><td>12</td><td>Overcast</td><td>Mild</td><td>High</td><td>Strong</td><td>Yes</td></tr>
<tr><td>13</td><td>Overcast</td><td>Hot</td><td>Normal</td><td>Weak</td><td>Yes</td></tr>
<tr><td>14</td><td>Rain</td><td>Mild</td><td>High</td><td>Strong</td><td>No</td></tr>
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TKM COLLEGE OF ENGINEERING, KOLLAM-5
Department of Computer Applications
I Semester MCA
Internal Assessment (Offline) March 2021
Course with Code: 20MCA107 ADVANCED SOFTWARE ENGINEERING
Scheme of Valuation/Answer Key

Time:2Hrs **Maximum Marks: 50**

Qn.No	PART –A Answer all questions
1	Definition of custom assertion -1.5 mark,example-1.5 mark
2	Unit test explanation-1 mark, use of unit tests-2 mark
3	At least three difference between factory method and abstract factory method-1 mark each
4	Concept of Anti pattern – 2 mark, example -1 mark
5	Dataflow testing and its usage carries 1.5 marks each
6	Explanation of refactor method carries 3 mark
7	At least three characteristics of agility in agile frame work -1 mark each
8	Comparison between pair wise and state transition testing -2 mark, with example -1 mark
9	Usage of version control –at least three points – 1 mark each
10	Differentiating continuous delivery and continuous deployment with neat sketch –(2 mark,sketch-1 mark)
	PART -B
11a	Definition of structural design pattern- 1mark Types of structural design pattern-1 mark Explanation of any two with its structure -3 mark
11b	Explanation of assertion with example-2.5 mark Explanation of expected error test with example-2.5 mark
12 a	About SCRUM-2 mark Phases with explanation -3 mark
12 b	Any three testing methodologies -3.5 mark If explaining with example – 1.5 mark each
13 a	Use of xunit architecture- 1 mark Phases with explanation and sketch – 4 mark
13 b	Explanation of automated regression testing -2 mark Features carries 3 mark
14 a	Role of continuous integration in SCM- 2 mark

	Strategy for its implementation-3 mark
14 b	Explanation of deployment pipeline -1 mark Detailed sketch carries 1 mark ,stages with its explanation carries 3 mark