

 PES University, Bengaluru (Established under Karnataka Act No. 16 of 2013)	UE20CS903																
March 2024: END SEMESTER ASSESSMENT (ESA) M TECH DATA SCIENCE AND MACHINE LEARNING _ SEMESTER I																	
Time: 3 Hrs	Answer All Questions	Max Marks: 100															
INSTRUCTIONS																	
<ul style="list-style-type: none"> ● All questions are compulsory. ● Section B and C are coding questions which have to be answered in the system and uploaded in Olympus Login. ● Section A should be handwritten in the answer script provided and signed at the end of the same. 																	
SECTION A – 20 MARKS																	
1	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">a</td><td>How to add foreign keys in MySQL?</td><td style="width: 10%; text-align: right;">2</td></tr> <tr> <td>b</td><td>What are the levels at which check constraints can be created? Justify your answer on what all data types the constraints can be applied.</td><td style="text-align: right;">2</td></tr> <tr> <td>c</td><td>What is the difference between isnull operator() and ifnull() function?</td><td style="text-align: right;">2</td></tr> <tr> <td>d</td><td>Is it possible to have two primary keys in a table? Explain what is meant by alternate keys in RDBMS with an example.</td><td style="text-align: right;">2</td></tr> <tr> <td>e</td><td>What is a view? Mention differences between Simple and Complex view.</td><td style="text-align: right;">2</td></tr> </table>	a	How to add foreign keys in MySQL?	2	b	What are the levels at which check constraints can be created? Justify your answer on what all data types the constraints can be applied.	2	c	What is the difference between isnull operator() and ifnull() function?	2	d	Is it possible to have two primary keys in a table? Explain what is meant by alternate keys in RDBMS with an example.	2	e	What is a view? Mention differences between Simple and Complex view.	2	
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b	Write a query to print first name and last name of a customer using orders table(everything after first space can be considered as last name) customer_name, first_name, last_name	5
c	Find the segments where the total sales exceed the average total sales across all segments.	5
d	Determine the month with the highest average discount rate	5
e	Calculate the moving average of sales for each product over a 3-month period	5
f	Find the best-selling and most profitable category in the given dataset	5
g	Identify the top 5 most profitable months in terms of total profit	5
h	Which country sold the most products?	5

SECTION C – 40 MARKS

4	Use orders schema for the following queries <ul style="list-style-type: none"> ● Customers: stores customer's data. ● Products: stores a list of scale model cars. ● ProductLines: stores a list of product line categories. ● Orders: stores sales orders placed by customers. ● OrderDetails: stores sales order line items for each sales order. ● Payments: stores payments made by customers based on their accounts. ● Employees: stores all employee information as well as the organization structure such as who reports to whom. ● Offices: stores sales office data. 	
	Consider the above sample database and write the queries.	
a	Find all employees who work in 'Paris' office. <ol style="list-style-type: none"> Write correlated subquery to get the results Write the same query using JOIN 	8
b	Find out the total value customers in the USA ordered from the productLine 'Classic Cars'. The total value is the sum quantityOrdered * priceEach. Order by total value descending.	8
c	Find all Motorcycles that do not have the scale numbers 1:18. Include Bike name, scale, and description into the result. Sort ascending by Scale and then Bike Name.	8
d	Find customer who has not ordered any products	8
e	Create a view called TRAIN_ORDERS that shows all the orders that were placed in 2003 and included models of trains (from 'Trains' product line). Include orderNumber, orderDate, shippedDate, and customerNumber fields into the view.	8