

|                                    |   |
|------------------------------------|---|
| Trainer Name                       |   |
| Course Title                       | <b>Database Administration (ORACLE DBA Track)</b>   |
| <b>Objectives and Expectations</b> | <p>This is a special course designed to address unemployment in the youth. The course aims to achieve the above objective through hands on practical training delivery by a team of dedicated professionals having rich market/work experience. This course is therefore not just for developing a theoretical understanding/back ground of the trainees. Contrary to that, it is primarily aimed at equipping the trainees to perform commercially in a market space in independent capacity or as a member of a team.</p> <p>The course therefore is designed to impart not only technical skills but soft skills as well as entrepreneurial skills deemed essential for that purpose i.e. communication skills; marketing skills (including freelancing); personal grooming of the trainees and inculcation of the positive work ethics to foster better citizenship in general and improve the image of Pakistani work force in particular.</p> <p><b>Main Expectations:</b></p> <p>In short, the course under reference should be delivered by professional instructors in such a robust hands- on manner that the trainees are comfortably able to employ their skills for earning money (through wage/self-employment) at its conclusion. This course thus clearly goes beyond the domain of the traditional training practices in vogue and underscores an expectation that a market centric approach will be adopted as the main driving force while delivering it. The instructors should therefore be experienced enough to be able to identify the training needs for the possible market roles available out there. Moreover, they should also know the strengths and weaknesses of each individual trainee to prepare them for such market roles during/after the training.</p> <p>i. Specially designed practical tasks to be performed by the trainees have been included in the Annexure-I to this document. Their weekly distribution has also been indicated in the weekly lesson plan given in this document. The record of all tasks performed individually or in groups must be preserved by the management of the training Institute clearly labeling name, trade, session etc so that these are ready to be physically inspected/verified through monitoring visits from time to time. The weekly distribution of tasks has also been indicated in the weekly lesson plan given in this document.</p> <p>ii. In order to materialize the main expectations, a special module on Job Search &amp; Entrepreneurial Skills has been included in the course through which, the trainees will be made aware of the Job search techniques in the local as well as international job markets (Gulf countries). Awareness around the visa process and immigration laws of the most favored labour destination countries also forms a part of this module. Moreover, the trainees would also be encouraged to venture into self-employment and exposed to the main requirements in this regard. It is also expected that a sense of civic duties/roles and responsibilities will be inculcated in the trainees to make them responsible citizens of the country.</p> |

iii. A module on Work Place Ethics has also been included to highlight the importance of good and positive behavior at work place in the line with the best practices elsewhere in the world. An outline of such qualities has been given in the Appendix to this document. Its importance should be conveyed in a format that is attractive and interesting for the trainees such as through PPT slides + short video documentaries. Needless to say that if the training provider puts his heart and soul into these, otherwise non-technical components, the image of Pakistani workforce would undergo a positive transformation in the local as well as international job markets. In order to maintain interest and motivation of the trainees throughout the course, modern techniques such as:

- Motivational lectures
- Success stories
- Case studies (in documentary or presentation format) These would be employed as additional training tools wherever possible (these are explained in the subsequent section on Training Methodology).

Lastly, evaluation of the competencies acquired by the trainees will be done objectively at various stages of the training and proper record of the same will be maintained. Suffice to say that for such evaluations, practical tasks would be designed by the training providers to gauge the problem solving abilities of the trainees.

#### **(i) Motivational Lectures**

The proposed methodology for the training under reference employs motivation as a tool. Hence besides the purely technical content, a trainer is required to include elements of motivation in his/her lecture. To inspire the trainees to utilize the training opportunity to the full and strive towards professional excellence. Motivational lectures may also include general topics such as the importance of moral values and civic role & responsibilities as a Pakistani. A motivational lecture should be delivered with enough zeal to produce a deep impact on the trainees. It may comprise of the following:

- Clear Purpose to convey the message to trainees effectively.
- Personal Story to quote as an example to follow.
- Trainees Fit so that the situation is actionable by trainees and not represent a just idealism.
- Ending Points to persuade the trainees on changing themselves.

A good motivational lecture should help drive creativity, curiosity, and spark the desire needed for trainees to want to learn more.

The impact of a successful motivational strategy is amongst others commonly visible in increased class participation ratios. It increases the trainees' willingness to be engaged on the practical tasks for a longer time without boredom and loss of interest because they can see in their mind's eye where their hard work would take them in short (1-3 years); medium (3 -10 years) and long term (more than 10 years).

As this tool is expected that the training providers would make arrangements for

regular well planned motivational lectures as part of a coordinated strategy interspersed throughout the training period as suggested in the weekly lesson plans in this document.

Course-related motivational lectures online link is available in **Annexure-II**.

### **(ii) Success Stories**

Another effective way of motivating the trainees is using Success Stories. Its inclusion in the weekly lesson plan at regular intervals has been recommended till the end of the training.

A success story may be disseminated orally, through a presentation, or using a video/documentary of someone that has risen to fortune, acclaim, or brilliant achievement. A success story shows how a person achieved his goal through hard work, dedication, and devotion. An inspiring success story contains compelling and significant facts articulated clearly and easily comprehensible words. Moreover, it is helpful if it is assumed that the reader/listener knows nothing of what is being revealed. The optimum impact is created when the story is revealed in the form of:-

- Directly in person (At least 2-3 cases must be arranged by the training institute)
- Through an audio/ videotaped message (2-3 high-quality videos must be arranged by the training institute)

It is expected that the training provider would collect relevant high-quality success stories for inclusion in the training as suggested in the weekly lesson plan given in this document.

The suggestive structure and sequence of a sample success story and its various shapes can be seen in **Annexure III**.

### **(iii) Case Studies**

Where a situation allows, case studies can also be presented to the trainees to widen their understanding of the real-life specific problem/situation and to explore the solutions.

In simple terms, the case study method of teaching uses a real-life case example/a typical case to demonstrate a phenomenon in action and explain theoretical as well as practical aspects of the knowledge related to the same. It is an effective way to help the trainees comprehend in depth both the theoretical and practical aspects of the complex phenomenon in depth with ease. Case teaching can also stimulate the trainees to participate in discussions and thereby boost their confidence. It also makes the classroom atmosphere interesting thus maintaining the trainee interest in training till the end of the course.

Depending on suitability to the trade, the weekly lesson plan in this document may suggest case studies be presented to the trainees. The trainer may adopt a PowerPoint presentation or video format for such case studies whichever is deemed suitable but only those cases must be selected that are relevant and of a learning value.

The Trainees should be required and supervised to carefully analyze the cases. For this purpose, they must be encouraged to inquire and collect specific information/data, actively participate in the discussions, and intended solutions to the problem/situation.

Case studies can be implemented in the following ways: -

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|  | <ul style="list-style-type: none"> <li>i. A good quality trade-specific documentary ( At least 2-3 documentaries must be arranged by the training institute)</li> <li>ii. Health &amp; Safety case studies (2 cases regarding safety and industrial accidents must be arranged by the training institute)</li> <li>iii. Field visits( At least one visit to a trade-specific major industry/ site must be arranged by the training institute)</li> </ul>  |
| <b>Entry-level of trainees</b>                         | <p>Since intake level is Bachelor of Computer Science (BCS)/ADS / B.Sc (Computer Science) so expectations from the trainees are:</p> <ul style="list-style-type: none"> <li>• Have knowledge of Programming Concepts</li> <li>• Have studied languages such as C, C++, JAVA</li> <li>• Have concept of Computer system</li> </ul>   |
| <b>Learning Outcomes of the course</b>                 | <p>After completion of this course, the trainees must be able to:</p> <ul style="list-style-type: none"> <li>• Have in-depth understanding of the DBA features of Oracle, specific Oracle concepts and knowledge required for the OCP exam, and tips and techniques for passing the Oracle OCP exam on your first attempt.</li> <li>• Have command on all Oracle Database Administration topics including SGA instance management, file &amp; tablespace management, user administration &amp; security and table &amp; index management.</li> <li>• Gain first-hand experience on the key Oracle DBA concepts required to pass the Oracle OCP exam. In addition, this course will provide sample OCP exam questions and an opportunity to access your overall knowledge of Oracle DBA concepts.</li> </ul> |
| <b>Companies Offering Jobs in the respective trade</b> | <p>Following are the major companies offering job opportunities: -</p> <p>International Companies: -</p> <ul style="list-style-type: none"> <li>• Zong</li> <li>• Telenor</li> <li>• Google</li> <li>• Intel</li> <li>• Microsoft</li> <li>• Many more</li> </ul> <p>Besides overseas employment, the following Pakistani companies/firms/Organizations are also offering jobs as well, with details as</p>   |

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|                                       | <p>under:-</p> <ul style="list-style-type: none"> <li>• Major Hospitals (Like RMI, Aga Khan, Shaukat Khanum, etc.)</li> <li>• NADRA</li> <li>• Ufone</li> <li>• PTCL</li> <li>• NTC</li> <li>• Passport Office</li> <li>• Excise and Taxation Office</li> </ul>   |
| <p><b>Job Opportunities</b></p>       | <p>The pass outs can work in the following capacities:-</p> <ul style="list-style-type: none"> <li>• Database Administrator</li> <li>• Systems / Data Analyst</li> <li>• SQL Developer</li> <li>• Database Architect</li> <li>• Data Architect</li> <li>• Database Manager</li> </ul>   |
| <p><b>Course Execution Plan</b></p>   | <p>The total duration of the course: <b>3 months (12 Weeks)</b><br/> Class hours: <b>4 hours per day</b><br/> Theory: <b>20%</b><br/> Practical: <b>80%</b><br/> Weekly hours: <b>20 hours per week</b><br/> Total contact hours: <b>240 hours</b></p>  |
| <p><b>Instructional Resources</b></p> | <ol style="list-style-type: none"> <li>1. Download Oracle software<br/> <a href="https://www.oracle.com/pk/database/technologies/oracle-database-software-downloads.html">https://www.oracle.com/pk/database/technologies/oracle-database-software-downloads.html</a></li> <li>2. Installation of Oracle<br/> <a href="https://www.youtube.com/watch?v=-u3DMXoD7Hg&amp;pp=ygUTb3JhY2xllGluc3RhbGxhdGlvbG%3D%3D">https://www.youtube.com/watch?v=-u3DMXoD7Hg&amp;pp=ygUTb3JhY2xllGluc3RhbGxhdGlvbG%3D%3D</a></li> <li>3. Basics of DBMS<br/> <a href="https://www.youtube.com/watch?v=mqprM5YUdpk&amp;pp=ygUraW50cm9kdWN0aW9uIHRvIGRhdGFiYXNlIG1hbmFnZW1lbnQgc3lzdGVtIA%3D%3D">https://www.youtube.com/watch?v=mqprM5YUdpk&amp;pp=ygUraW50cm9kdWN0aW9uIHRvIGRhdGFiYXNlIG1hbmFnZW1lbnQgc3lzdGVtIA%3D%3D</a></li> <li>4. Data Manipulation in Oracle<br/> <a href="https://www.youtube.com/watch?v=q6ZojdO1zcA&amp;pp=ygUbb3JhY2xllHNpbnmZSByb3cgZnVuY3Rpb25z">https://www.youtube.com/watch?v=q6ZojdO1zcA&amp;pp=ygUbb3JhY2xllHNpbnmZSByb3cgZnVuY3Rpb25z</a></li> <li>5. Oracle single row funations<br/> <a href="https://www.youtube.com/watch?v=qxVKTMT80Fg&amp;pp=ygUbb3JhY2xllHNpbnmZSByb3cgZnVuY3Rpb25z">https://www.youtube.com/watch?v=qxVKTMT80Fg&amp;pp=ygUbb3JhY2xllHNpbnmZSByb3cgZnVuY3Rpb25z</a></li> <li>6. SQL Joins<br/> <a href="https://www.youtube.com/watch?v=F-pQGKjZRfM&amp;pp=ygURSm9pbmluZyBpbiBvcmljGU%3D">https://www.youtube.com/watch?v=F-pQGKjZRfM&amp;pp=ygURSm9pbmluZyBpbiBvcmljGU%3D</a></li> </ol> |

7. Aggregate functions and Null values

<https://www.youtube.com/watch?v=pn9OI3sSKFE&pp=ygUaYWdncmVnYXRlIGZ1bmN0aW9ucyBpbiBzcWw%3D>

8. Oracle database backup and Recovery

<https://www.youtube.com/watch?v=vPXMemnVzUE&list=PLKCK3OyNwIzvBOMjKFGqrFrdzbiOrSZYB>

| Scheduled Weeks |                           | Days  | Hours  |   | Home Assignment  |
|-----------------|---------------------------|-------|--------|---|--|
| Week 1          | SQL:<br>SELECT<br>Command | Day 1 | Hour 1 | <ul style="list-style-type: none"> <li>• Introduction to Course</li> </ul>  | <ul style="list-style-type: none"> <li>• Task 1, 2, 3, 4,5</li> </ul> <p><i><u>Details may be seen at Annexure-1</u></i></p> |
|                 |                           |       | Hour 2 | <ul style="list-style-type: none"> <li>• Install, create, and administer Oracle Database</li> </ul>   |  |
|                 |                           |       | Hour 3 | <ul style="list-style-type: none"> <li>• Install, create, and administer Oracle Database</li> </ul>   |  |
|                 |                           |       | Hour 4 | <ul style="list-style-type: none"> <li>• Install, create, and administer Oracle Database</li> </ul>   |  |
|                 |                           | Day 2 | Hour 1 | <ul style="list-style-type: none"> <li>• Basic Select Statements <ul style="list-style-type: none"> <li>– Selecting All Columns</li> <li>– Selecting Specific Columns</li> </ul> </li> </ul>  |  |
|                 |                           |       | Hour 2 | <ul style="list-style-type: none"> <li>• Basic Select Statements <ul style="list-style-type: none"> <li>– Using Arithmetic Operators</li> <li>– Using Column Aliases</li> <li>– Using the Concatenation Operator</li> </ul> </li> </ul> |  |
|                 |                           |       | Hour 3 | <ul style="list-style-type: none"> <li>• Basic Select Statements <ul style="list-style-type: none"> <li>– Arithmetic Expressions</li> </ul> </li> </ul>   |  |
|                 |                           |       | Hour 4 | <ul style="list-style-type: none"> <li>• Basic Select Statements <ul style="list-style-type: none"> <li>– Using the Concatenation Operator</li> </ul> </li> </ul>   |  |
|                 |                           | Day 3 | Hour 1 | <ul style="list-style-type: none"> <li>• SELECT FROM WHERE <ul style="list-style-type: none"> <li>– Limiting Columns Using a Selection</li> <li>– Limiting the Rows Selected</li> </ul> </li> </ul>                                     |  |

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|  |  |              |               |   |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>• SELECT FROM WHERE <ul style="list-style-type: none"> <li>– Using the WHERE Clause</li> <li>– Character Strings and Dates</li> <li>– Using Comparison Conditions</li> </ul> </li> </ul> |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>• SELECT FROM WHERE <ul style="list-style-type: none"> <li>– Duplicate Rows</li> <li>– Eliminating Duplicate Rows</li> </ul> </li> </ul>   |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>• SELECT FROM WHERE <ul style="list-style-type: none"> <li>– Using Comparison Conditions</li> </ul> </li> </ul>  |
|  |  | <b>Day 4</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>• SELECT FROM WHERE <ul style="list-style-type: none"> <li>– Using the between Condition</li> </ul> </li> </ul>  |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>• SELECT FROM WHERE <ul style="list-style-type: none"> <li>– Using the IN, LIKE, NULL Conditions</li> </ul> </li> </ul>  |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>• SELECT FROM WHERE <ul style="list-style-type: none"> <li>– Using the IN, LIKE, NULL Conditions</li> </ul> </li> </ul>  |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>• SELECT FROM WHERE <ul style="list-style-type: none"> <li>– Using the AND, OR, NOT Operators</li> </ul> </li> </ul>   |
|  |  | <b>Day 5</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>• DESCRIBE Command <ul style="list-style-type: none"> <li>– Displaying Table Structure</li> <li>– Interacting with Script Files</li> </ul> </li> </ul>                                   |



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|        |               |       | Hour 2 | <ul style="list-style-type: none"> <li>• ORDER BY Clause <ul style="list-style-type: none"> <li>– Sorting in Descending Order</li> </ul> </li> </ul>   |  |
|        |               |       | Hour 3 | <ul style="list-style-type: none"> <li>• ORDER BY Clause <ul style="list-style-type: none"> <li>– Sorting by Column Alias</li> <li>– Sorting by Multiple Columns</li> </ul> </li> </ul>              |  |
|        |               |       | Hour 4 | <ul style="list-style-type: none"> <li>• Operator Precedence</li> <li>• Null Value</li> </ul>  |  |
| Week 2 | SQL Functions | Day 1 | Hour 1 | <ul style="list-style-type: none"> <li>• Types of SQL Functions <ul style="list-style-type: none"> <li>– Single-Row Functions</li> </ul> </li> </ul>   | <ul style="list-style-type: none"> <li>• Task 6,7,8,9,10,11,12</li> </ul> <p><i>Details may be seen at <u>Annexure-1</u></i></p> |
|        |               |       | Hour 2 | <ul style="list-style-type: none"> <li>– Character Functions</li> <li>– Character-Manipulation Functions</li> </ul>  |  |
|        |               |       | Hour 3 | <ul style="list-style-type: none"> <li>– Case Manipulation Functions</li> </ul>  |  |
|        |               |       | Hour 4 | <ul style="list-style-type: none"> <li>• Number Functions Using the ROUND, TRUNC, MOD Functions</li> </ul>   |  |
|        |               | Day 2 | Hour 1 | <ul style="list-style-type: none"> <li>• Working with Dates Using Date Functions</li> <li>• Using Arithmetic Operators with Dates</li> </ul>   |  |
|        |               |       | Hour 2 | <ul style="list-style-type: none"> <li>• Conversion Functions <ul style="list-style-type: none"> <li>– Implicit Data-Type Conversion</li> <li>– Explicit Data-Type Conversion</li> </ul> </li> </ul> |  |

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|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>• Conversion Functions</li> <li>– Using the TO_CHAR Function with Dates</li> <li>– Using the TO_CHAR Function with Numbers</li> <li>– Using the TO_NUMBER and TO_DATE Functions</li> </ul> |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>• Nesting Functions</li> </ul>   |
|  |  | <b>Day 3</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>• NVL, NVL2 Functions</li> <li>• NULLIF Function</li> </ul>  |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>• COALESCE Function</li> </ul>   |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>• Conditional Expressions</li> <li>– Using the CASE Expression</li> </ul>  |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>• Conditional Expressions</li> <li>– Using the DECODE Function</li> </ul>  |
|  |  | <b>Day 4</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>• Multi-row Functions</li> <li>– Aggregate Functions</li> </ul>  |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>• AVG, SUM, MIN, MAX, COUNT Functions</li> </ul>   |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>• Group Functions and Null Values</li> <li>– NVL Function with Group Functions</li> </ul>  |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>• GROUP BY Clause</li> <li>• ORDER BY Clause</li> </ul>  |
|  |  | <b>Day 5</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>• Creating Groups of Data: GROUP BY Clause Syntax</li> </ul>   |

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|        |                          |       | Hour 2 | <ul style="list-style-type: none"> <li>– Grouping by More Than One Column</li> </ul>  |   |
|        |                          |       | Hour 3 | <ul style="list-style-type: none"> <li>• HAVING Clause</li> </ul>   |   |
|        |                          |       | Hour 4 | <ul style="list-style-type: none"> <li>• Aggregate Functions and HAVING Clause</li> </ul>                                     |   |
| Week 3 | SQL Joins and Subqueries | Day 1 | Hour 1 | <ul style="list-style-type: none"> <li>• Introduction and purpose of Joins</li> </ul>   | <ul style="list-style-type: none"> <li>• Task 13-15</li> </ul> <p><i><u>Details may be seen at Annexure-I</u></i></p> |
|        |                          |       | Hour 2 | <ul style="list-style-type: none"> <li>• Joining of multiple tables</li> <li>– Obtaining Data from Multiple Tables</li> </ul> |   |
|        |                          |       | Hour 3 | <ul style="list-style-type: none"> <li>• Types of Joins</li> </ul>  |   |
|        |                          |       | Hour 4 | <ul style="list-style-type: none"> <li>• Outer Joins</li> <li>• Self Joins</li> <li>• Cross Joins</li> </ul>                  |   |
|        |                          | Day 2 | Hour 1 | <ul style="list-style-type: none"> <li>• Natural Joins</li> </ul>   |   |
|        |                          |       | Hour 2 | <ul style="list-style-type: none"> <li>• LEFT OUTER JOIN</li> <li>• RIGHT OUTER JOIN</li> <li>• FULL OUTER JOIN</li> </ul>    |   |
|        |                          |       | Hour 3 | <ul style="list-style-type: none"> <li>• Joining Multiple tables using the AND Operator</li> </ul>                            |   |
|        |                          |       | Hour 4 | <ul style="list-style-type: none"> <li>• Resolving Ambiguous Column Names during the joining of tables</li> </ul>             |   |

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|  |  | <b>Day 3</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>Joining More than two Tables using AND operator</li> </ul>   |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>Joining More than two Tables using Natural Join</li> </ul>   |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>Creating Joins with the ON Clause</li> <li>– Three-Way Joins with the ON Clause</li> </ul>   |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>Overview of the overall Joining mechanisms in databases</li> </ul>   |
|  |  | <b>Day 4</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>Introduction to subqueries</li> <li>– Subquery Syntax</li> <li>– Guidelines for Using Subqueries</li> </ul>  |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>Single-Row Subqueries</li> <li>Multi-row subqueries</li> <li>– Using the ANY Operator in Multiple-Row Subqueries</li> <li>– Using the ALL Operator in Multiple-Row Subqueries</li> </ul> |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>Group Functions in a Subquery</li> </ul>   |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>HAVING Clause with Subqueries</li> </ul>   |
|  |  | <b>Day 5</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>Dealing with variables</li> <li>– DEFINE and UNDEFINE Commands</li> </ul>  |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>DEFINE Command with &amp; Substitution Variable</li> </ul>   |

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|        |                            |       | Hour 3 | <ul style="list-style-type: none"> <li>Multi-level subqueries</li> </ul>  |  |
|        |                            |       | Hour 4 | <ul style="list-style-type: none"> <li>Null Values in a Subquery</li> <li>Using the Substitution Variable</li> </ul>                    |  |
| Week 4 | Data Manipulation Language | Day 1 | Hour 1 | <ul style="list-style-type: none"> <li>INSERT Statement Syntax</li> <li>Inserting New Rows</li> <li>Inserting Special Values</li> </ul> | <ul style="list-style-type: none"> <li>Task 16-21</li> </ul> <p><i>Details may be seen at Annexure-I</i></p> |
|        |                            |       | Hour 2 | <ul style="list-style-type: none"> <li>Inserting Rows with Null Values</li> <li>Inserting Specific Date Values</li> </ul>               |  |
|        |                            |       | Hour 3 | <ul style="list-style-type: none"> <li>Copying Rows from Another Table</li> </ul>   |  |
|        |                            |       | Hour 4 | <ul style="list-style-type: none"> <li>Using a Subquery in an INSERT Statement</li> </ul>   |  |
|        |                            | Day 2 | Hour 1 | <ul style="list-style-type: none"> <li>The UPDATE Statement Syntax</li> <li>Updating Two Columns with a Subquery</li> </ul>             |  |
|        |                            |       | Hour 2 | <ul style="list-style-type: none"> <li>Updating Rows Based on Another Table</li> </ul>  |  |
|        |                            |       | Hour 3 | <ul style="list-style-type: none"> <li>Update multiple values in at a time</li> <li>Update and merge query</li> </ul>                   |  |
|        |                            |       | Hour 4 | <ul style="list-style-type: none"> <li>Updating Rows: Integrity Constraint Error</li> </ul>   |  |
|        |                            | Day 3 | Hour 1 | <ul style="list-style-type: none"> <li>The DELETE Statement</li> <li>Deleting Rows from a Table</li> </ul>                              |  |

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|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>Deleting Rows Based on Another Table</li> </ul>   |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>Deleting Rows: Integrity Constraint Error</li> </ul>  |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>The MERGE Statement <ul style="list-style-type: none"> <li>MERGE data in table</li> </ul> </li> </ul> |
|  |  | <b>Day 4</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>Database Transactions <ul style="list-style-type: none"> <li>ACID</li> </ul> </li> </ul>              |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>COMMIT and ROLLBACK Statements</li> </ul>   |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>Implicit Transaction Processing</li> </ul>  |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>Data Before COMMIT or ROLLBACK</li> <li>Data After COMMIT</li> </ul>                                  |
|  |  | <b>Day 5</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>Read Consistency</li> <li>Implementation of Read Consistency</li> </ul>                               |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>Controlling transactions</li> <li>Managing Database Transactions</li> </ul>                           |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>Locking <ul style="list-style-type: none"> <li>2-Phase Locking protocol</li> </ul> </li> </ul>        |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>Statement-Level Rollback</li> <li>Data After ROLLBACK</li> </ul>                                      |

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| Week 5 | SQL: Data Definition Language | Day 1 | Hour 1 | <ul style="list-style-type: none"> <li>• The CREATE TABLE Statement</li> <li>– Creating a Table by Using a Subquery</li> </ul>   | <ul style="list-style-type: none"> <li>• Task 22-27</li> </ul> <p><i><u>Details may be seen at Annexure-I</u></i></p> |
|        |                               |       | Hour 2 | <ul style="list-style-type: none"> <li>• Data Types</li> <li>– Datetime Data Types</li> <li>– Timestamp With Time Zone Data Type</li> <li>– Timestamp With Local Time Data Type</li> <li>– Numeric and text</li> </ul> |   |
|        |                               |       | Hour 3 | <ul style="list-style-type: none"> <li>• The ALTER TABLE Statement</li> <li>– Adding a Column</li> <li>– Modifying a Column</li> <li>– Dropping a Column</li> </ul>  |   |
|        |                               |       | Hour 4 | <ul style="list-style-type: none"> <li>• The ALTER TABLE Statement</li> <li>– Adding constraints</li> <li>– Dropping a Column</li> </ul>   |   |
|        |                               | Day 2 | Hour 1 | <ul style="list-style-type: none"> <li>• Dropping a Table</li> <li>– Dropping constraints</li> </ul>   |   |
|        |                               |       | Hour 2 | <ul style="list-style-type: none"> <li>• The SET UNUSED Option</li> <li>• Truncating a Table</li> </ul>  |   |
|        |                               |       | Hour 3 | <ul style="list-style-type: none"> <li>• Creating an Index</li> <li>– When to Create an Index</li> <li>– When Not to Create an Index</li> </ul>  |   |
|        |                               |       | Hour 4 | <ul style="list-style-type: none"> <li>• Synonyms</li> <li>– Creating and Removing Synonyms</li> </ul>   |   |

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|  |  | <b>Day 3</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>• What Are Constraints?</li> <li>– The NOT NULL Constraint</li> <li>– The UNIQUE Constraint</li> <li>– The PRIMARY KEY Constraint</li> <li>– The FOREIGN KEY Constraint</li> </ul> |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>• What Are Constraints?</li> <li>– The NOT NULL Constraint</li> <li>– The UNIQUE Constraint</li> <li>– The PRIMARY KEY Constraint</li> <li>– The FOREIGN KEY Constraint</li> </ul> |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>• Adding a Constraint</li> <li>• Dropping a Constraint</li> <li>• Disabling Constraints</li> </ul>   |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>• Enabling Constraints</li> <li>– Viewing Constraints</li> <li>– Viewing the Columns Associated with Constraints</li> </ul>  |
|  |  | <b>Day 4</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>• What Is a View?</li> <li>– Creating a View</li> <li>– Why Use Views?</li> </ul>  |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>• Simple Views and Complex Views</li> <li>– Retrieving Data from a View</li> </ul>   |



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|        |   |       | Hour 3 | <ul style="list-style-type: none"> <li>- Querying a View</li> <li>- Modifying a View</li> </ul>  |  |
|        |   |       | Hour 4 | <ul style="list-style-type: none"> <li>• DML commands on View</li> </ul>   |  |
|        |   | Day 5 | Hour 1 | <ul style="list-style-type: none"> <li>• What Is a Sequence?</li> <li>- The CREATE SEQUENCE Statement</li> <li>- Using &amp; Modifying a Sequence</li> </ul> |  |
|        |   |       | Hour 2 | <ul style="list-style-type: none"> <li>• Removing a Sequence</li> <li>• NEXTVAL and CURRVAL Pseudo columns</li> </ul>  |  |
|        |   |       | Hour 3 | <ul style="list-style-type: none"> <li>• Use of sequence while inserting new data in table</li> </ul>  |  |
|        |   |       | Hour 4 | <ul style="list-style-type: none"> <li>• Querying the Data Dictionary</li> </ul>   |  |
| Week 6 | Managing Users, Roles and Privileges - Oracle | Day 1 | Hour 1 | <ul style="list-style-type: none"> <li>• Introduction to Database Security</li> </ul>  | <ul style="list-style-type: none"> <li>• <b>Task 28-32</b></li> </ul> <p><i><u>Details may be seen at Annexure-I</u></i></p> |
|        |   |       | Hour 2 | <ul style="list-style-type: none"> <li>• DBA responsibilities for security</li> </ul>  |  |
|        |   |       | Hour 3 | <ul style="list-style-type: none"> <li>• Apply the principle of least privilege</li> </ul>   |  |
|        |   |       | Hour 4 | <ul style="list-style-type: none"> <li>• Create and manage database user accounts</li> </ul>   |  |
|        |   | Day 2 | Hour 1 | <ul style="list-style-type: none"> <li>• Authenticate users</li> </ul>   |  |
|        |   |       | Hour 2 | <ul style="list-style-type: none"> <li>• Creating Users</li> <li>- What Is a Role?</li> <li>- Create Role</li> </ul>   |  |

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|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>- Privileges</li> <li>- System Privileges</li> <li>- Object Privileges</li> </ul> |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>• Creating and Granting Privileges to a Role</li> </ul>                           |
|  |  | <b>Day 3</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>• Granting System Privileges</li> </ul>   |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>• Granting Object Privileges</li> </ul>   |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>• Using the WITH GRANT OPTION and PUBLIC Keywords in Grant</li> </ul>             |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>• Confirming Privileges Granted</li> </ul>  |
|  |  | <b>Day 4</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>• Creating and using Database Links</li> </ul>                                    |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>• Create and assigning roles to users</li> </ul>                                  |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>• Revoking System Privileges</li> </ul>   |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>• Revoking Object Privileges</li> </ul>   |
|  |  | <b>Day 5</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>• Create and manage profiles</li> </ul>   |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>• Control resource usage by users</li> </ul>                                      |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>• Enable standard database auditing</li> <li>- Specify audit options</li> </ul>   |

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|        |                              |       | Hour 4 | <ul style="list-style-type: none"> <li>Review audit information</li> </ul>   |   |
| Week 7 | Oracle Database Architecture | Day 1 | Hour 1 | <ul style="list-style-type: none"> <li>Difference between undo data and redo data</li> </ul>                               | <ul style="list-style-type: none"> <li>• Task 33</li> </ul> <p><i>Details may be seen at Annexure-1</i></p> |
|        |                              |       | Hour 2 | <ul style="list-style-type: none"> <li>Monitor and administer undo data</li> </ul>   |   |
|        |                              |       | Hour 3 | <ul style="list-style-type: none"> <li>Explain DML and undo data generation</li> </ul>                                     |   |
|        |                              |       | Hour 4 | <ul style="list-style-type: none"> <li>Configure undo retention</li> </ul>   |   |
|        |                              | Day 2 | Hour 1 | <ul style="list-style-type: none"> <li>Guarantee undo retention</li> </ul>   |   |
|        |                              |       | Hour 2 | <ul style="list-style-type: none"> <li>Create additional listeners</li> </ul>  |   |
|        |                              |       | Hour 3 | <ul style="list-style-type: none"> <li>Create Oracle Net Service aliases</li> </ul>  |   |
|        |                              |       | Hour 4 | <ul style="list-style-type: none"> <li>Control the Oracle Net Listener</li> <li>Configure connect-time failover</li> </ul> |   |
|        |                              | Day 3 | Hour 1 | <ul style="list-style-type: none"> <li>Use tnsping to test Oracle Net connectivity</li> </ul>                              |   |
|        |                              |       | Hour 2 | <ul style="list-style-type: none"> <li>Shared servers versus dedicated servers</li> </ul>                                  |   |
|        |                              |       | Hour 3 | <ul style="list-style-type: none"> <li>Manage the Automatic Workload Repository (AWR)</li> </ul>                           |   |
|        |                              |       | Hour 4 | <ul style="list-style-type: none"> <li>Use the Automatic Database Diagnostic Monitor (ADDM)</li> </ul>                     |   |

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|        |                                    | Day 4 | Hour 1 | <ul style="list-style-type: none"> <li>Oracle Database Instance Configurations</li> </ul>        |   |
|        |                                    |       | Hour 2 | <ul style="list-style-type: none"> <li>Oracle Database Instance Configurations</li> </ul>        |   |
|        |                                    |       | Hour 3 | <ul style="list-style-type: none"> <li>Oracle Database Memory Structures</li> </ul>              |   |
|        |                                    |       | Hour 4 | <ul style="list-style-type: none"> <li>Oracle Database Process Structures</li> </ul>             |   |
|        |                                    | Day 5 | Hour 1 | <ul style="list-style-type: none"> <li>Logical Database Structures</li> </ul>                    |   |
|        |                                    |       | Hour 2 | <ul style="list-style-type: none"> <li>Physical Database Structures</li> </ul>                   |   |
|        |                                    |       | Hour 3 | <ul style="list-style-type: none"> <li>Oracle Database Server Architecture</li> </ul>            |   |
|        |                                    |       | Hour 4 | <ul style="list-style-type: none"> <li>Managing Database Instances</li> </ul>                    |   |
| Week 8 | Performance and Failure Management | Day 1 | Hour 1 | <ul style="list-style-type: none"> <li>Use Enterprise Manager to monitor performance</li> </ul>  | <b>Task 34,35</b><br><i>Details may be seen at Annexure-I</i> |
|        |                                    |       | Hour 2 | <ul style="list-style-type: none"> <li>Tune SQL by using the SQL Tuning Advisor</li> </ul>       |   |
|        |                                    |       | Hour 3 | <ul style="list-style-type: none"> <li>Tune SQL by using the SQL Access Advisor</li> </ul>       |   |
|        |                                    |       | Hour 4 | <ul style="list-style-type: none"> <li>SQL Tuning Advisor</li> <li>SQL Access Advisor</li> </ul> |   |
|        |                                    | Day 2 | Hour 1 | <ul style="list-style-type: none"> <li>Automatic Shared Memory Management</li> </ul>             |   |
|        |                                    |       | Hour 2 | <ul style="list-style-type: none"> <li>Automatic Shared Memory Management</li> </ul>             |   |
|        |                                    |       | Hour 3 | <ul style="list-style-type: none"> <li>Memory Advisor to size memory buffers</li> </ul>          |   |

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|               |                          |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>View performance-related dynamic views</li> </ul>                             |                 |
|               |                          | <b>Day 3</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>Identify the types of failure that may occur in an Oracle database</li> </ul> |                 |
|               |                          |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>Identify the types of failure that may occur in an Oracle database</li> </ul> |                 |
|               |                          |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>Describe ways to tune instance recovery</li> </ul>                            |                 |
|               |                          |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>Checkpoints and its importance in recovery</li> </ul>                         |                 |
|               |                          | <b>Day 4</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>redo log files, and archive log files</li> </ul>                              |                 |
|               |                          |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>Configure ARCHIVELOG mode</li> </ul>  |                 |
|               |                          |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>Configure ARCHIVELOG mode</li> </ul>  |                 |
|               |                          |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>Concepts of Backup in databases</li> </ul>                                    |                 |
|               |                          | <b>Day 5</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>Create consistent database backups</li> </ul>                                 |                 |
|               |                          |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>Back up your database without shutting it down</li> </ul>                     |                 |
|               |                          |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>Create incremental backups</li> </ul>   |                 |
|               |                          |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>Automate database backups</li> </ul>  |                 |
| <b>Week 9</b> | <b>Database Recovery</b> | <b>Day 1</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>Redo log file</li> </ul>  | <b>•Task 36</b> |

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|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>Data file and redo log file</li> </ul>  | <i><u>Details may be seen at Annexure-I</u></i> |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>Monitor the flash recovery area</li> </ul>  |   |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>Flashback</li> </ul>  |   |
|  |  | <b>Day 2</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>Restore the table content to a specific point in the past with Flashback</li> </ul> |   |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>Recover from a dropped table</li> </ul>   |   |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>Flashback Versions Query</li> </ul>   |   |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>Versions of a row over time with Flashback Versions Query</li> </ul>                |   |
|  |  | <b>Day 3</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>Directory objects</li> </ul>  |   |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>Create and use directory objects</li> </ul>   |   |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>Concept of Data Pump</li> </ul>   |   |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>General architecture of Data Pump</li> </ul>  |   |
|  |  | <b>Day 4</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>Data Pump Export</li> </ul>   |   |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>Data Pump Import</li> </ul>   |   |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>Data Pump Export and Import to move data between Oracle databases</li> </ul>        |   |

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|         |                              |       | Hour 4 | <ul style="list-style-type: none"> <li>Use external tables to move data via platform-independent files</li> </ul>        |  |
|         |                              | Day 5 | Hour 1 | <ul style="list-style-type: none"> <li>Use SQL*Loader to load data from a non-Oracle database (or user files)</li> </ul> |  |
|         |                              |       | Hour 2 | <ul style="list-style-type: none"> <li>Use SQL*Loader to load data from a non-Oracle database (or user files)</li> </ul> |  |
|         |                              |       | Hour 3 | <ul style="list-style-type: none"> <li>Moving data from files to database</li> </ul>                                     |  |
|         |                              |       | Hour 4 | <ul style="list-style-type: none"> <li>Moving Data from database to flat file</li> </ul>                                 |  |
| Week 10 | Configuring Recovery Manager | Day 1 | Hour 1 | <ul style="list-style-type: none"> <li>Explain the concept and importance of recovery</li> </ul>                         | <b>Task 37,38,39</b><br><br><i>Details may be seen at Annexure-I</i> |
|         |                              |       | Hour 2 | <ul style="list-style-type: none"> <li>Recovery tools</li> </ul>   |  |
|         |                              |       | Hour 3 | <ul style="list-style-type: none"> <li>Recovery methods</li> </ul>   |  |
|         |                              |       | Hour 4 | <ul style="list-style-type: none"> <li>RMAN (Recovery MANager)</li> </ul>  |  |
|         |                              | Day 2 | Hour 1 | <ul style="list-style-type: none"> <li>RMAN repository</li> </ul>  |  |
|         |                              |       | Hour 2 | <ul style="list-style-type: none"> <li>RMAN recovery catalog</li> </ul>  |  |
|         |                              |       | Hour 3 | <ul style="list-style-type: none"> <li>Configure database parameters that affect RMAN operations</li> </ul>              |  |
|         |                              |       | Hour 4 | <ul style="list-style-type: none"> <li>Configure database parameters that affect RMAN operations</li> </ul>              |  |
|         |                              | Day 3 | Hour 1 | <ul style="list-style-type: none"> <li>Retention policies</li> </ul>   |  |

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|         |                          |       | Hour 2 | <ul style="list-style-type: none"> <li>Retention policies and RMAN</li> </ul>                                |   |
|         |                          |       | Hour 3 | <ul style="list-style-type: none"> <li>Recover temporary tablespaces</li> </ul>                              |   |
|         |                          |       | Hour 4 | <ul style="list-style-type: none"> <li>Recover a redo log group member</li> </ul>                            |   |
|         |                          | Day 4 | Hour 1 | <ul style="list-style-type: none"> <li>Detect database corruption Technique</li> </ul>                       |   |
|         |                          |       | Hour 2 | <ul style="list-style-type: none"> <li>Detect database corruption by using DBMS_REPAIR</li> </ul>            |   |
|         |                          |       | Hour 3 | <ul style="list-style-type: none"> <li>Recover from a lost index</li> </ul>                                  |   |
|         |                          |       | Hour 4 | <ul style="list-style-type: none"> <li>Re-create the password file</li> </ul>                                |   |
|         |                          | Day 5 | Hour 1 | <ul style="list-style-type: none"> <li>Perform complete or incomplete user- managed recovery</li> </ul>      |   |
|         |                          |       | Hour 2 | <ul style="list-style-type: none"> <li>Identify situations where incomplete recovery is necessary</li> </ul> |   |
|         |                          |       | Hour 3 | <ul style="list-style-type: none"> <li>Perform complete or incomplete recovery by using RMAN</li> </ul>      |   |
|         |                          |       | Hour 4 | <ul style="list-style-type: none"> <li>Perform incomplete recovery based on time</li> </ul>                  |   |
| Week 11 | Oracle: Recovery Manager | Day 1 | Hour 1 | <ul style="list-style-type: none"> <li>incomplete recovery in databases</li> </ul>                           | <ul style="list-style-type: none"> <li><b>Task 40,41</b><br/><i>Details may be seen at <u>Annexure-I</u></i></li> </ul> |
|         |                          |       | Hour 2 | <ul style="list-style-type: none"> <li>Identify situations where incomplete recovery is necessary</li> </ul> |   |



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|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>Complete or incomplete recovery</li> </ul>                        |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>Perform complete or incomplete recovery by using RMAN</li> </ul>  |
|  |  | <b>Day 2</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>Perform incomplete recovery based on time, SCN</li> </ul>         |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>Perform incomplete recovery based on log sequence</li> </ul>      |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>Perform incomplete recovery based on restore points</li> </ul>    |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>Perform incomplete recovery based on the cancel method</li> </ul> |
|  |  | <b>Day 3</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>Methods to Recover automatically</li> </ul>                       |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>Recover an automatically backed up control file</li> </ul>        |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>Enterprise Manager Recovery</li> </ul>                            |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>Recovery though Flashback</li> </ul>                              |
|  |  | <b>Day 4</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>Guaranteed restore points</li> </ul>                              |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>Use guaranteed restore points with Flashback Database</li> </ul>  |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>Types of database corruption</li> </ul>                           |

|         |  |       |        |  |   |
|---------|--|-------|--------|--|---|
|         |  |       | Hour 4 | <ul style="list-style-type: none"> <li>Causes of database corruption</li> </ul>                          |   |
|         |  | Day 5 | Hour 1 | <ul style="list-style-type: none"> <li>Causes of database corruption due to Hardware</li> </ul>          |   |
|         |  |       | Hour 2 | <ul style="list-style-type: none"> <li>Causes of database corruption due to Software</li> </ul>          |   |
|         |  |       | Hour 3 | <ul style="list-style-type: none"> <li>Detect database corruption by using: ANALYZE</li> </ul>           |   |
|         |  |       | Hour 4 | <ul style="list-style-type: none"> <li>Detect database corruption by using: DBVERIFY</li> </ul>          |   |
| Week 12 |  | Day 1 | Hour 1 | <ul style="list-style-type: none"> <li>Detect database corruption by using: DB_BLOCK_CHECKING</li> </ul> | <ul style="list-style-type: none"> <li><b>Task 42,43</b></li> </ul> <p><i>Details may be seen at <a href="#">Annexure-1</a></i></p> |
|         |  |       | Hour 2 | <ul style="list-style-type: none"> <li>Detect database corruption by using: DBMS_REPAIR</li> </ul>       |   |
|         |  |       | Hour 3 | <ul style="list-style-type: none"> <li>Repair corruptions by using RMAN</li> </ul>                       |   |
|         |  |       | Hour 4 | <ul style="list-style-type: none"> <li>Repair corruptions by using RMAN</li> </ul>                       |   |
|         |  | Day 2 | Hour 1 | <ul style="list-style-type: none"> <li>SGA (Shared Global Architecture)</li> </ul>                       |   |
|         |  |       | Hour 2 | <ul style="list-style-type: none"> <li>Memory components in the SGA</li> </ul>                           |   |
|         |  |       | Hour 3 | <ul style="list-style-type: none"> <li>Shared Memory Management</li> </ul>                               |   |
|         |  |       | Hour 4 | <ul style="list-style-type: none"> <li>Implement Automatic Shared Memory Management</li> </ul>           |   |

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|--|--|--------------|---------------|--|
|  |  | <b>Day 3</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>• SGA parameters</li> </ul>   |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>• Manually configure SGA parameters</li> </ul>                          |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>• PGA memory</li> </ul>   |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>• Configure automatic PGA memory management</li> </ul>                  |
|  |  | <b>Day 4</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>• Diagnose database performance issues</li> </ul>                       |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>• Automatic Workload Repository</li> </ul>                              |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>• Configure the Automatic Workload Repository</li> </ul>                |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>• Database advisors</li> </ul>  |
|  |  | <b>Day 5</b> | <b>Hour 1</b> | <ul style="list-style-type: none"> <li>• Access the database advisors</li> </ul>                               |
|  |  |              | <b>Hour 2</b> | <ul style="list-style-type: none"> <li>• Use the SQL Access Advisor to improve database performance</li> </ul> |
|  |  |              | <b>Hour 3</b> | <ul style="list-style-type: none"> <li>• Perform related DBA tasks:</li> </ul>                                 |
|  |  |              | <b>Hour 4</b> | <ul style="list-style-type: none"> <li>• Configure the Database Resource Manager</li> </ul>                    |

## Tasks For Oracle Certified Professional (OCP) Database

### Administrator (DBA) Track

**Note:** The following tasks are required to be performed multiple times by each trainee/group until sufficient proficiency level is acquired. The trainer is required to determine the number of times the task needs to be repeated by a trainee as per his/her low/medium/high level of skill and proficiency during any stage of the course.

| <b>Task No.</b> | <b>Task</b>  | <b>Description</b>  | <b>Week No</b> |
|-----------------|--|---|----------------|
| 1.              | <b>Installation / Uninstallation</b>   | Install and uninstall Oracle 11g  | <b>Week-1</b>  |
| 2.              | <b>Use of Select command</b>   | Select all data from the table. Display the last name concatenated with the job ID, separated by a comma and space. Name this column Employee and Title.  |                |
| 3.              | <b>Use of Select command with Parameters</b>   | Show the structure of the EMPLOYEES table. Create a query to display the last name, job code, hire date, and employee number for each employee, with employee number appearing first. Save your SQL statement to a file named lab1_7.sql.   |                |
| 4.              | <b>Use of Select &amp; Unique commands together</b>  | Create a query to display unique job codes from the EMPLOYEES table.  |                |
| 5.              | <b>Use of Select &amp; greater Than commands together</b>  | Create a query to display the last name and salary of employees earning more than \$12,000. Place your SQL statement in a text file named lab2_1.sql. Run your query.   |                |
| 6.              | <b>Automatically calculate increase in salary by 15% and display new salary</b>  | For each employee, display the employee ID number, last-name, salary, and salary increased by 15% and expressed as a whole number. Label the column New Salary. Place your SQL statement in a text file named lab32.sql.  |                |
| 7.              | <b>Display the name of only those employees whose names starts with J, A, or M with first letter capitalized. Also calculate the length of their names</b> | Write a query that displays the employee's last names with the first letter capitalized and all other letters lowercase and the length of the names, for all employees whose name starts with J, A, or M. Give each column an appropriate label. Sort the results by the employees' last names. |                |

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|-----|--|--|-----------------|
| 8.  | <b>Calculate the total months of Employment</b>                                | For each employee, display the employee's last name, and calculate the number of months between today and the date the employee was hired. Label the column MONTHS_WORKED. Order your results by the number of months                                |                 |
| 9.  | <b>Display only few columns from the table</b>                                 | Write a query to display the last name, department number, and department name for all employees.  | <b>Week - 2</b> |
| 10. | <b>Display data of only those employees who earn Commission</b>                | Write a query to display the employee last name, department name, location ID, and city of all employees who earn a commission.  |                 |
| 11. | <b>Display only those records whose last name is in lower case letters</b>     | Display the employee last name and department name for all employees who have a (lowercase) in their last names. Place your SQL statement in a text file named lab4_4.sql.   |                 |
| 12. | <b>Text manipulation column Names</b>  | Display the employee last name and employee number along with their manager's last name and manager number. Label the columns Employee, Emp#, Manager, and Mgr#, respectively. Place your SQL statement in a text file named lab4_6.sql.             |                 |
| 13. | <b>Display the highest, lowest, sum, and average salary of all employees</b>   | Display the highest, lowest, sum, and average salary of all employees. Label the columns Maximum, Minimum, Sum, and Average, respectively. Round your results to the nearest whole number. Place your SQL statement in a text file named lab5_6.sql. | <b>Week-3</b>   |
| 14. | <b>Display the minimum, maximum, sum, and average salary for each job type</b> | Modify the query in lab5_4.sql to display the minimum, maximum, sum, and average salary for each job type. Resave lab5_4.sql to lab5_5.sql. Run the statement in lab5_5.sql.   |                 |
| 15. | <b>Display the record of employees who earn more than the average salary</b>   | Create a query to display the employee numbers and last names of all employees who earn more than the average salary. Sort the results in ascending order of salary.   |                 |
| 16. | <b>Display the details of Executive employees only</b>                         | Display the department number, last name, and job ID for every employee in the Executive department.   | <b>Week-4</b>   |
| 17. | <b>Adding data in the first row of table</b>                                   | Add the first row of data to the MY_EMPLOYEE table from the following sample data. Do not list the columns in the INSERT clause.   |                 |
| 18. | <b>Adding data in the second row of table</b>                                  | Populate the MY_EMPLOYEE table with the second row of sample data from the preceding list. This time, list the columns explicitly in the INSERT clause.  |                 |
| 19. | <b>Use of Insert Command</b>   | Populate the table with the next two rows of sample data by running the INSERT statement in the script that you created  |                 |

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| 20. | <b>Use of insert command for populating table</b>        | Populate the table with the last row of sample data by modifying the statements in the script that you created in step 6. Run the statements in the script.  |               |
| 21. | <b>Delete all records from a Table</b>                   | Empty the entire table. Confirm that the table is empty.   |               |
| 22. | <b>Create a Table named Dept</b>                         | Create the DEPT table based on the following table instance chart. Place the syntax in a script called lab9_1.sql, then execute the statement in the script to create the table.   | <b>Week-5</b> |
| 23. | <b>Populate one table with the data of another table</b> | Populate the DEPT table with data from the DEPARTMENTS table. Include only columns that you need.  |               |
| 24. | <b>Increase the column size of last name column</b>      | Modify the EMP table to allow for longer employee last names. Confirm your modification.   |               |
| 25. | <b>Adding a Primary Key in a table</b>                   | Add a table-level PRIMARY KEY constraint to the EMP table on the ID column. The constraint should be named at creation. Name the constraint my_emp_id_pk   |               |
| 26. | <b>Create a View</b>                                     | Create a view called EMPLOYEES_VU based on the employee numbers, employee names, and department numbers from the EMPLOYEES table. Change the heading for the employee name to EMPLOYEE   |               |
| 27. | <b>Selecting the data from View</b>                      | Select the view name and text from the USER_VIEWS data dictionary view.  |               |
| 28. | <b>Use of sequence and primary key constraint</b>        | Create a sequence to be used with the primary key column of the DEPT table. The sequence should start at 200 and have a maximum value of 1000. Have your sequence increment by ten numbers. Name the sequence DEPT_ID_SEQ  |               |
| 29. | <b>Use of Non-Unique index</b>                           | Create a nonunique index on the foreign key column (DEPT_ID) in the EMP table.   |               |
| 30. | <b>Define privileges</b>                                 | You are the DBA. You are creating many users who require the same system privileges. What should you use to make your job easier?  |               |
| 31. | <b>Grant access to another user</b>                      | Grant another user access to your DEPARTMENTS table. Have the user grant you query access to his or her DEPARTMENTS table.   |               |
| 32. | <b>Create a Profile to limit resources</b>               | <p>Creating a profile to limit resource consumption</p> <ul style="list-style-type: none"> <li>• Creating two roles: <ul style="list-style-type: none"> <li>– HRCLERK</li> <li>– HRMANAGER</li> </ul> </li> <li>• Creating four new users: <ul style="list-style-type: none"> <li>– One manager and two clerks</li> <li>– One schema user for the next practice session</li> </ul> </li> </ul> |               |

|     |   |  |                |
|-----|---|--|----------------|
| 33. | <b>Configuring Listener</b>                       | Configure new listener and Oracle Services   | <b>Week-7</b>  |
| 34. | <b>Tips to improve Performance</b>                | What are some tips to improve the performance of SQL queries performance of a Database   | <b>Week-8</b>  |
| 35. | <b>Archive Log of Database</b>                    | Configure database into Archive Log. Perform an Online backup.   |                |
| 36. | <b>Backup Operations</b>                          | Perform the following <ul style="list-style-type: none"> <li>• Logical Backups</li> <li>• Cold Backups</li> <li>• Hot Backups (Archive log)</li> </ul> | <b>Week-9</b>  |
| 37. | <b>Configure RMAN</b>                             | Configure RMAN, Perform complete database backup using RMAN. Perform Incremental backup using RMAN   | <b>Week-10</b> |
| 38. | <b>Detect corruption in RMAN</b>                  | Detect corruption of the block in the RMAN database, What are the steps to fix this?   |                |
| 39. | <b>RMAN Recovery</b>                              | What are the steps to install the RMAN recovery catalog?   |                |
| 40. | <b>Oracle Flashback drop</b>                      | Disable and enable Flashback<br>How to use Oracle Flashback drop   | <b>Week-11</b> |
| 41. | <b>Recovery</b>                                   | Recover a cold backup using Operating System Command.<br>Recover a data base using Operating System RMAN.  |                |
| 42. | <b>Recovering Table</b>                           | Recover a single table, User schema using Imp/Expand Data pump utility   | <b>Week-12</b> |
| 43. | <b>How to Enable and disable Automatic Memory</b> | Enable and disable Automatic Memory Management commands .  |                |

## **Workplace/Institute Ethics Guide**

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Work ethic is a standard of conduct and values for job performance. The modern definition of what constitutes good work ethics often varies. Different businesses have different expectations. Work ethic is a belief that hard work and diligence have a moral benefit and an inherent ability, virtue, or value to strengthen character and individual abilities. It is a set of values-centered on the importance of work and manifested by determination or desire to work hard.

The following ten work ethics are defined as essential for student success:

**1. Attendance:**

Be at work every day possible, plan your absences don't abuse leave time. Be punctual every day.

**2. Character:**

Honesty is the single most important factor having a direct bearing on the final success of an individual, corporation, or product. Complete assigned tasks correctly and promptly. Look to improve your skills.

**3. Team Work:**

The ability to get along with others including those you don't necessarily like. The ability to carry your weight and help others who are struggling. Recognize when to speak up with an idea and when to compromise by blend ideas together.

**4. Appearance:**

Dress for success set your best foot forward, personal hygiene, good manner, remember that the first impression of who you are can last a lifetime

**5. Attitude:**

Listen to suggestions and be positive, accept responsibility. If you make a mistake, admit it. Values workplace safety rules and precautions for personal and co-worker safety. Avoids unnecessary risks. Willing to learn new processes, systems, and procedures in light of changing responsibilities.

**6. Productivity:**

Do the work correctly, quality and timelines are prized. Get along with fellows,



cooperation is the key to productivity. Help out whenever asked, do extra without being asked. Take pride in your work, do things the best you know-how. Eagerly focuses energy on accomplishing tasks, also referred to as demonstrating ownership. Takes pride in work.

**7. Organizational Skills:**

Make an effort to improve, learn ways to better yourself. Time management; utilize time and resources to get the most out of both. Take an appropriate approach to social interactions at work. Maintains focus on work responsibilities.

**8. Communication:**

Written communication, being able to correctly write reports and memos. Verbal communications, being able to communicate one on one or to a group.

**9. Cooperation:**

Follow institute rules and regulations, learn and follow expectations. Get along with fellows, cooperation is the key to productivity. Able to welcome and adapt to changing work situations and the application of new or different skills.

**10. Respect:**

Work hard, work to the best of your ability. Carry out orders, do what's asked the first time. Show respect, accept, and acknowledge an individual's talents and knowledge. Respects diversity in the workplace, including showing due respect for different perspectives, opinions, and suggestions.