Time Allowed: 3hrs.
Read the following instructions carefully before attempting the question paper.
1. Match the Paper Code shaded on the OMR Sheet with the Paper code mentioned on the question paper and ensure that both are the same.
2. This question paper is divided into two parts A and B.
3. Part A contains 30 questions of 1 mark each, 0.25 marks will be deducted for each wrong answer.
4. Part B contains 5 questions of 10 marks each. Attempt any 4 questions out of these 5 questions. In case all the 5 questions are attempted then only the first four attempted questions will be evaluated.
5. Attempt all the questions in serial order.
6. Do not write or mark anything on the question paper except your registration no. on the designated space.
7. After completion of first 90 minutes, the OMR sheet will be taken by the invigilator.
8. Submit the question paper and the rough sheet(s) along with the answer sheet to the invigilator before leaving the examination hall.

Part-A

Q1) A transaction may not always complete its execution successfully. Such a transaction is termed
a) Aborted   b) Terminated
c) Closed   d) Failed

CO1, L2

(2) Determine the correct statement
   a) Concurrent schedules are always serial.
   b) Serial schedule is always consistent.
(a)   only a (b),   only b (c)   Both a and b   (d)   Neither a nor b

CO2, L3

(3) Which of the following is not true about the exception handling section of a PL/SQL block?
A) This section starts with the EXCEPTION keyword.   B) It is a mandatory section.
C) It contains exception(s) that handle errors in the program.   D) None of the above.

CO2, L3

(4) Determine the correct statement
   a) Conservative locking protocol ensures recoverability in schedules
   b) Strict locking protocol helps to solve deadlock problem
(a)   only a (b)   only b (c)   both a and b   (d)   neither a nor b

CO2, L3

(5) Complete the following
The schedules which are not conflict serializable but still can give consistent result are ....
(a)   non serializable (b)   non conflict serializable (c)   non conflict equivalent (d)   view serializable

CO2, L3

(6) Determine the correct statement about dirty read
   (a)   it causes recoverability (b)   it can lead to consistency (c)   The data value is read from buffer (d)   All of above

CO2, L3

(7) Which cursor attribute returns TRUE if record was not fetched successfully, FALSE otherwise.
a) %ISOPEN   b) FOUND   c) %NOFOUND   d) %NOTFOUND

CO2, L3

(8) Consider the following action:
Transaction
Commit;
Rollback;
What does Rollback do?
A. Undoes the transactions before commit   B. Clears all transactions
C. Redoes the transactions before commit   D. No action

CO2, L

(9) Determine the correct statement:
(a) timestamping protocol is used for deadlock recovery (b) timestamping protocol helps to ensure consistency of database
(c) Both above (d) None of these

(10) For which Exception, if a SELECT statement attempts to retrieve data based on its conditions, this exception is raised when no rows satisfy the SELECT criteria?
a. TOO_MANY_ROWS   b. NO_DATA_FOUND
c. VALUE_ERROR   d. DUP_VAL_ON_INDEX

(11) Determine which of these is a database-oriented programming language that extends *OracleSQL* with procedural capabilities.
(a) SQL (b) PL/SQL (c) DBMS (d) NONE

(12) Examine which of these PL/SQL code block section is mandatory to write.
(a) Begin Section (b) Declare Section (c) Exception Handling Section (d) None of the above

(13) State which of the following method is correct to read a value during run time in PL/SQL
(a) Num = Num; (b) Num = Num; (c) Num := Num (d) Num = :Num

(14) Examine which of these statements of SQL is used to assign values to PL/SQL variables
(a) SELECT name, address, salary INTO c_name, c_addr, c_sal FROM customers
(b) SELECT name, address, salary IN c_name, c_addr, c_sal FROM customers
UPDATE name, address, salary SET c_name, c_addr, c_sal FROM customers (c)
UPDATE name, address, salary INTO c_name, c_addr, c_sal FROM customers (d)

(15) Identify by what statement a PL/SQL block is terminated.
(a) END Statement (b) STOPStatement (c) BREAKStatement (d) None of these

(16) Determining which of the following is true about the execution section of a PL/SQL block?
(a) It consists of the executable PL/SQL statements. (b) It is a mandatory section.
(c) It is enclosed between the keywords BEGIN and END (d) All of the above.

(17) Communicate what is the data stored in the cursor known ?
(a) Passive Data Set (b) Partially Active Data Set (c) Active Data Set (d) None of these

(18) Observe which of these subprograms do not return a value directly and is mainly used to perform an action.
(a) Union (b) Function (c) Trigger (d) Procedure

(19)
Identify which of these are stored programs that are fired by Oracle engine automatically when DML Statements like insert, update, delete are executed on the table or some events occur called ?
(a) Cursor (b) Trigger (c) Procedure (d) None

(20) Identify which of the following is true about comments in PL/SQL?
(a) Comments are explanatory statements. (b) The PL/SQL single-line comments start with the delimiter - - (double hyphen)
(c) Multi-line comments are enclosed by /* and */. (d) All of the above.

(21) In Big Data environments, Velocity refers –

(a) Data can arrive at fast speed (b) Enormous datasets can accumulate within very short periods of time
(c) Velocity of data translates into the amount of time it takes for the data to be processed (d) All of the mentioned above

(22) Data that does not conform to a data model or data schema is known as _____.

(a) Structured data (b) Unstructured data (c) Semi-structured data (d) All of the mentioned above

(23) Amongst which of the following can be considered as the main source of unstructured data.

(a) Twitter (b) Facebook (c) Webpages (d) • All of the mentioned above

CO4, L1

(24) MongoDB is a ___ database.

(a) SQL (b) DBMS (c) • NoSQL (d) RDBMS

CO3, L1

(25) Organizing your files according to their blocks and putting those blocks onto a storage medium is referred to as ___

(a) Data organization (b) • File organization (c) Recursive organization (d) None

CO3, L1

(26) Which of the following is a type of file organization?

(a) Sequential FO (b) Heap FO (c) Hash FO (d) • All of the above

CO3, L1

(27) A database is ___ to reduce the number of disk accesses needed to process queries in order to improve performance.

(a) Non-indexed (b) • Indexed (c) Inserted (d) Updated

CO3, L1

(28) What is the purpose of the index in sql ?
a) To enhance the query performance   b) To provide an index to a record
c) To perform fast searches   • d) All of the mentioned

CO3, L1

(29) Which of the following is the column in structure of index?

(a) Search Key (b) Data Reference (c) • Both A and B (d) None of the above

CO3, L1

(30) A ___ key is sorted in order to make it easy to access data corresponding to it.

(a) • Primary (b) Foreign (c) Composite (d) Alternate

CO3, L1

Part-B

Q2) Answer the following:
i Discuss the types of keys used in the DBMS and explain any four keys with examples.
ii Discuss the types of joins and explain any two with examples.

CO2, L3, [10 marks]

Q3)
Define Normalization of a relational database management system. If a relation R is given as R(A,B,C) with functional dependency set as FD={A→B,B→C}, check if the relation is in 3 NF. Also, If the relation is not in 3NF, convert it into 3NF. Define all the suitable normalization forms as per the given scenario.

CO3, L1, [10 marks]

Q4) Define a transaction. Also explain the ACID properties with the help of example.

CO4, L1, [10 marks]

Q5)
Apply a trigger named "operation" of a given table "student" so that if someone tries to delete data from it, before deleting the data, a backup is created automatically and all rows are copied as a backup in a table named "studnet_backup".

CO5, L3, [10 marks]

Q6) Explain indexing and its types in detail.

CO6, L2, [10 marks]

—End of Question paper—