Informatics Practices
Class 11th (Term II)

Practice Paper 1*
(Solved)

General Instructions

- **Time :** 2 Hours
- **Max. Marks :** 35

1. There are 9 questions in the question paper. All questions are compulsory.
2. Question no. 1 is a Case Based Question, which has five MCQs. Each question carries one mark.
3. Question no. 2-6 are Short Answer Type Questions. Each question carries 3 marks.
4. Question no. 7-9 are Long Answer Type Questions. Each question carries 5 marks.
5. There is no overall choice. However, internal choices have been provided in some questions. Students have to attempt only one of the alternatives in such questions.

**** As exact Blue-print and Pattern for CBSE Term II exams is not released yet. So the pattern of this paper is designed by the author on the basis of trend of past CBSE Papers. Students are advised not to consider the pattern of this paper as official, it is just for practice purpose.***

1. Direction *Read the case and answers the following questions.*

Mr. Akashdeep wants to work with databases and DBMS softwares. He has started exploring different DBMS/RDBMS softwares. He is also going through the SQL commands that will help him working with the DBMS software. In his course of study he has gone through the concepts of Database, DBMS, Relation, Key fields, Degree, Cardinality etc. He has learnt the commands, Create, Use, Alter, Select, Update etc. To smoothen his concepts help him in solving the following queries.

(i) The ALTER command belongs to the category
(a) DDL (b) DML
(c) TCL (d) DCL

(ii) The MODIFY clause of ALTER command allows to change
(a) size of column (b) type of column
(c) name of column (d) Both (a) and (b)

(iii) The data type for a column that will store prices, if items in decimal form can be of type
(a) float (b) double
(c) Both (a) and (b) (d) varchar

(iv) The data type that does not require a size to be specified is
(a) float (b) varchar
(c) char (d) date

(v) The format for time in MySQL is
(a) MM:HH:SS (b) HH:MM:SS
(c) SS:MM:HH (d) SS:DD:HH

2. What do you mean by an operator? Name any four operators used in queries.

Or Write the queries for the following questions using the table Item with the following fields.
(Item_Code, Item_Name, Quantity, Price)

(i) Display the price 500 of item having code as I06.

(ii) Display the name of all items with quantity greater than 50 and price less than 500.

3. Read the following data

Table : ITEM

Item_Code	Item_Name	Price
100	Refrigerator	9000
101	Television	8000
102	Computer	12000
103	Washing Machine	7000

Write MySQL queries for the following (table name is PRODUCT).

(i) Display the details of products whose price is more than 8000 arranged by Item_Name in ascending order.

(ii) Increase the price of the item Television by 10%.

Or (i) Add a new column DtMfg of type date to store the date of manufacture of the products.

(ii) Increase the width of Item_Name column to varchar(50)

4. Consider the following table with their fields.

```
EMPLOYEE(ECODE,ENAME,DESIG,SALARY, DOJ)
```

(i) List the names, salary, PF, HRA, DA of all the employees in the EMPLOYEE Table. HRA is 25% of salary, DA is 10% of salary and PF is 5% of salary. The result should be in descending order of ENAMES.

(ii) Using IN clause display details of employees whose designations are "Manager" or "Officer".

Or Write the syntax of SQL commands with description.

5. Write few uses of Natural Language Processing.

6. Write the uses of immersive experiences in artificial intelligence?

7. Write the situations where you will use the IN, BETWEEN and LIKE clauses.

Or Write the SQL commands for the questions from (i) to (v) on the basis of table Employee.

Emp_no	E_name	Profile	Manager	Hire_date	Salary	Commission	Dept_no
8369	SMITH	CLERK	8902	1990-12-18	8000	NULL	20
8499	ANYA	SALESMAN	8698	1991-02-20	16000	300.00	30
8521	SETH	SALESMAN	8698	1991-02-22	12500	500.00	30
8566	MAHADEVAN	MANAGER	8839	1991-04-02	29850	NULL	20
8654	MOMIN	SALESMAN	8698	1991-09-28	12500	1400.00	30
8698	BINA	MANAGER	8839	1991-05-01	28500	NULL	30
8882	SHIVANSH	MANAGER	8839	1991-06-09	24500	NULL	10
8888	SCOTT	ANALYST	8566	1992-12-09	30000	NULL	20
8839	AMIR	PRESIDENT	NULL	1991-11-18	50000	NULL	10
8844	KULDEEP	SALESMAN	8698	1991-09-08	15000	0.00	30

(i) Display Employee Name and Salary of those employees whose salary is greater than or equal to 22000?

(ii) Display details of empolyees those are not getting commission.

(iii) Display employee name and salary of those employees who have their salary in range of 2000 to 4000?

(iv) Display the name, profile and salary of employee(s) who doesn't have manager?

(v) Display the name of employee whose name contains "A" as fourth alphabet.

8. Consider the table STUDENT given below and write answer for (i) and SQL commands for (ii) to (v).

Student_No	Class	Name	Game	G_Grade	Section	Marks
01	7	Rahul	Swimming	B	A	99
02	8	Sameer	Tenis	A	B	20
03	10	Dushyant	FootBall	C	C	87
04	12	Kapil	Tennis	D	C	90
05	6	Ravinder	Cricket	A	B	97

(i) What is the degree and cardinality of the table.

(ii) Display Student_No and G_Grade of all students from table STUDENT.

(iii) List the Name from table STUDENT whose Student_No is 04 or 05 or 02.

(iv) Display Game and Marks for those students whose name started with an alphabet 'D'.

(v) Write a query to display Name and Section for those students whose Marks lies between 85 to 100.

Or Explain grid computing along with its categories.

9. What are constraints of a table? Name them all. Discuss UNIQUE, CHECK and DEFAULT constraints.

Or Write SQL queries with respect to the table cellphone given below

Table : Cellphone

Modelld	Brand	Type	Cost
M01	Samsung	4G	12500
C11	Realme	2G	15000
T12	TCL	3G	7000
D402	Nokia	4G	6500
M02	Samsung	5G	2500

(i) To display details of 4G cellphones whose cost is greater than 10000.

(ii) To increase cost of 5G phones by 20%.

(iii) To add a new column DateofMfg of type Date.

(iv) To display ModelId and cost of Samsung phones.

(v) To display details of phones whose ModelId ends with "2".

Explanations

1. (i) (*a*) The ALTER command that makes changes to the structure of a table belongs to the DDL category.
   (ii) (*d*) The ALTER command's MODIFY clause allows to change both a column's size and data type.
   (iii) (*c*) Since the price column will store data with decimal values it can be of type float or double.
   (iv) (*d*) Since for date data type the number characters are fixed, that is YYYY-MM-DD, it does not require size to be specified.
   (v) (*b*) The format for time is Hour : Minute : Second.
2. An operator is a component of an expression that represents the action that should be taken over a set of values. Four operators used in queries are
   (i) Arithmetic operators
   (ii) Comparison operators
   (iii) Boolean/Logical operator
   (iv) Between operator

   Or

   (i)
```
mysql>SELECT Price FROM Item
          WHERE Item_Code = 'I06';
```
   (ii)
```
mysql>SELECT Item_Name
          FROM Item
          WHERE (Quantity >  50) AND
          (Price < 500);
```
3. (i)
```
Select * from ITEM where Price > 8000 order
by Item_Name ;
```
   (ii)
```
Update ITEM set price = price +price*10/100
where Item_Name="Television";
```

   Or

   (i)
```
Alter table ITEM ADD DtMfg Date;
```
   (ii)
```
Alter table ITEM MODIFY Item_Name
varchar(50);
```
4. (i)
```
Select ENAME,SALARY,SALARY *0.05 as "PF",
SALARY *0.25 as "HRA", SALARY *0.10 as "DA"
from EMPLOYEE order by ENAME DESC;
```
   (ii)
```
Select * from EMPLOYEE where DESIG
IN("Manager" ,"Officer");
```

   Or

   SQL is followed by a unique set of rules and guidelines called syntax.

Symbols Used in Syntax of SQL Statements

Symbol	Description
|	Symbolic way of 'or' whatever precedes this symbol may optionally be replaced by whatever follows it.
[ ]	Everything enclosed in it is optional.
…	Whatever precedes, it may be repeated number of times.
,,..	Whatever precedes, it may be repeated number of times with individual occurrences of commas.
{ }	Everything enclosed in it, is evaluating different symbols (1., ... etc.).
< >	SQL and some other terms are enclosed by this angle brackets.

5. Following are the uses of Natural Language Processing:
   (i) Sentiment Analysis.
   (ii) Text Classification.
   (iii) Chatbots & Virtual Assistants.
   (iv) Text Extraction.
   (v) Machine Translation.
   (vi) Text Summarisation.
   (vii) Market Intelligence.
   (viii) Auto-correct.
6. With the three dimensional (3D) videography, the joy of watching movies in theatres has reached to a new level. Video games are also being developed to provide immersive experiences to the player. Immersive experience allows us to visualise, feel and react by stimulating over senses. It enhances our interaction and involvement, making them more realistic and engaging. Immersive experiences have been used in the field of training such as driving simulators, flight simulator and so on.
7. **The IN** clause is used in place of multiple OR clauses. The IN clause can replace multiple Ors joining the conditions in a query. This makes the command smaller.

   e.g. To display the employee details for employees working in departments "Sales","Purc" and "IT" the command with and without IN will be :

   Select * from Employee where dept="Sales" or dept="Purc" or dept="IT";

   Select * from Employee where dept IN ("Sales", "Purc","IT");

   The BETWEEN clause is used to match ranges in a query. The >= and <= ranges can be matched using the BETWEEN clause.

   e.g. To display the details of employees getting salary between 50000 and 90000, the command with and without the BETWEEN clause will be

   Select * from Employee where salary>=50000 and salary <=90000;

   Select * from Employee where salary BETWEEN 50000 and 90000;

   The LIKE clause is used in places where a pattern is to be matched in a query, that is where partial information about the match is provided. It uses two wild cards * and _ to match missing characters.

e.g.

(i) To display the details of employees whose name begins with "S" the command will be :

Select * from Employee where name like "S%";

e.g.

(ii) To display details of employees whose department ends with "S" the command will be :

Select * from Employee where dept like "%S";

Or

(i)
```
mysql>SELECT E_name, Salary From Emloyee
WHERE Salary>=22000;
```

(ii)
```
mysql>SELECT * FROM Employee WHERE Commission
IS NULL;
```

(iii)
```
mysql>SELECT E_name, Salary FROM Employee
WHERE Salary BETWEEN 2000 AND 4000;
```

(iv)
```
mysql>SELECT E_name, Profile, Salary FROM
Employee WHERE Manager IS NULL;
```

(v)
```
mysql>SELECT E_name FROM Employee WHERE
E_name LIKE '..... A%';
```

8. (i) **Degree** 7(Degree is the total number of columns)

Cardinality 5 (Cardinality is the total number of rows).

(ii)
```
mysql>SELECT Student_No, G_Grade FROM
STUDENT;
```

(iii)
```
mysql>SELECT Name FROM STUDENT WHERE
STUDENT_No IN (04, 05, 02);
```

(iv)
```
mysql>SELECT Game, Marks FROM STUDENT WHERE
Name LIKE 'D%';
```

(v)
```
mysql>SELECT Name, Section FROM STUDENT WHERE
Marks BETWEEN 85 AND 100;
```

Or

Grid computing is a distributed architecture of large number of computers connected to solve a complex problem. It is a group of networked computers which work together as a virtual super computer to perform large tasks, such as analysing huge sets of data or weather modeling.

Through the cloud, you can assemble and use vast computer grids for specific time periods and purposes, paying if necessary, only for what you use to save both the time and expense of purchasing and deploying the necessary resources yourself.

Unlike parallel computing, grid computing projects typically have no time dependence associated with them. They use computers which are part of the grid only when idle and operators can perform tasks unrelated to the grid at any time.

Grid operations are generally classified into two categories

(i) **Data Grid** A system that handles large distributed data sets used for data management and controlled user sharing.

(ii) **CPU or Processor Grid** CPU or processor grid system, where processing is moved from one PC to another as needed or a large task is divided into subtasks, and allotted to various nodes for parallel processing.

9. Constraints are checks or conditions given on fields of a table. This restricts entry of invalid data by the database users. Constraints also allow enforcement of business rules into tables. The constraints can be applied on table columns : Primary Key, Foreign Key, Check, Unique, Default.

(i) **Unique Constraint** This constraint ensures that a column or a group of columns in each row have a unique value.

(ii) **Check Constraint** This constraint enforce the domain integrity by limiting the values that are accepted by a column.

(iii) **Default Constraint** This constraint is used to insert a default value into a column that is left blank at the time of input data.

Or

(i)
```
Select * from cellphone where Type="4G" and
cost>10000;
```

(ii)
```
Update cellphone set Cost=Cost + Cost*0.2
where type="5G";
```

(iii)
```
Alter table cellphone ADD DateofMfg Date;
```

(iv)
```
Select ModelId, Cost from Cellphone where
Brand="Samsung";
```

(v)
```
Select * from cellphone where ModelId like
"%2";
```