**SAMPLE PAPER (2013)**

**CLASS – XII**

**SUB: COMPUTER SCIENCE**

[*SQL,BOOLEAN ALGEBRA ,COMMUNICATION & OSS]*

I.

1)

1. What are DDL and DML Commands? Give one example of each. 2
2. Consider the following tables Stationary and Consumer. Write SQL commands for the statement (i) to (iv) and output for SQL queries (v) to (viii): 6

**Table: Stationary**

|  |  |  |  |
| --- | --- | --- | --- |
| **S\_ID** | **StationaryName** | **Company** | **Price** |
| DP01 | Dot Pen | ABC | 10 |
| PL02 | Pencil | XYZ | 6 |
| ER05 | Eraser | XYZ | 7 |
| PL01 | Pencil | CAM | 5 |
| GP02 | Gel Pen | ABC | 15 |

**Table: Consumer**

|  |  |  |  |
| --- | --- | --- | --- |
| **C\_ID** | **ConsumerName** | **Address** | **S\_ID** |
| 01 | Good Learner | Delhi | PL01 |
| 06 | Write Well | Mumbai | GP02 |
| 12 | Topper | Delhi | DP01 |
| 15 | Write & Draw | Delhi | PL02 |
| 16 | Motivation | Banglore | PL01 |

1. To display the details of those consumers whose Address is Delhi.
2. To display the details of Stationary whose Price is in the range of 8 to 15. (Both Value included)
3. To display the ConsumerName, Address from Table Consumer, and Company and Price from table Stationary, with their corresponding matching S\_ID.
4. To increase the Price of all stationary by 2.
5. SELECT DISTINCT Address FROM Consumer;
6. SELECT Company, MAX(Price), MIN(Price), COUNT(\*) from Stationary GROUP BY Company;
7. SELECT Consumer.ConsumerName, Stationary.StationaryName, Stationary.Price FROM Strionary, Consumer WHERE Consumer.S\_ID=Stationary.S\_ID;
8. Select StationaryName, Price\*3 From Stationary;

2)

1. Verify the following algebraically 2

(A’+B’).(A+B)=A’.B+A.B’

1. Draw a logical Circuit Diagram for the following Boolean Expression: 2  
    A.(B+C’)
2. Write the equivalent Canonical Sum of Product for the following Product of Sum 1  
   Expression: F(X,Y,Z)= ∏(1,3,6,7)
3. If F(a,b,c,d) =∑(0,1,3,4,5,7,8,9,11,12,13,15), obtain the simplified form using K-Map. 3

3)

1. What was the role of ARPANET in the Computer Network? 2
2. Which of the following units measures the speed with which data can be transmitted from one node to another node of a network? Also, give the expansion of the suggested unit.1

(i) KMph (ii) Mbps (iii) MGps

1. Write the full forms of the following: 1

(i) FTP (ii) FSF

1. “Vidya for All” is an educational NGO. It is setting up its new campus at Jaipur for its web based activities. The campus has four buildings as shown in diagram below: 4

Main Building

Resource Building

Training Building

Accounts Building

Center to center distances between various buildings as per architectural drawings (in meters) is as follows:

|  |  |
| --- | --- |
| Main Building to Resource Building | 120m |
| Main Building to Training Building | 40m |
| Main Building to Accounts Building | 135m |
| Resource Building to Training Building | 125m |
| Resource Building to Accounts Building | 45m |
| Training Building to Accounts Building | 110m |

Expected number of Computers in each building is as follows:

|  |  |
| --- | --- |
| Main Building | 15 |
| Resource Building | 25 |
| Training Building | 250 |
| Accounts Building | 10 |

* 1. Suggest a cable layout of connection between the buildings.
  2. Suggest the most suitable place( i.e building) to house the server of this NGO. Also provide a suitable reason for your suggestion.
  3. Suggest the placement of the following devices with justification:
     1. Repeater
     2. Hub/Switch
  4. The NGO is planning to connect its International office situated in Delhi. Which out of following wired communication links, will you suggest for very high speed connectivity?

i) Telephone Analog Line ii) Optical Fibre iii) Ethernet Cable

1. What are cookies? 1
2. What do you mean by FLOSS? 1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| II (**a)**  **(b)** | Consider the following relation and perform the relational algebra operation (for Q. 1 & 2):  **Customer:**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | id | Name | Banker name | Amount | Balance | | C001 | reva | reva | 21000 | 22000 | | C002 | ramesh | ajit | 10000 | 25000 | | C003 | kalpana | ajit | 5000 | 35000 | | C004 | sonali | reva | 12000 | 22000 | | C005 | ajay | kamal | 5000 | 13000 |   1) Display the name of customer with their banker name and Balance.  2) Find out the name and balance of customer having Balance >=20000.  **OR**  What do you mean by Primary Key and Candidate Key, explain?  Consider the following WORKERS and DESIG. Write SQL commands for the statements (i) to (iv) and give outputs for SQL queries (v) to (vi)  WORKERS   |  |  |  |  |  | | --- | --- | --- | --- | --- | | W\_ID | FIRSTNAME | LASTNAME | ADDRESS | CITY | | 102 | Sam | Tones | 33 Elm St. | Paris | | 105 | Sarah | Ackerman | 440 U.S. 110 | New York | | 144 | Manila | Sengupta | 24 Friends Street | New Delhi | | 210 | George | Smith | 83 First Street | Howard | | 255 | Mary | Jones | 842 Vine Ave. | Losantiville | | 300 | Robert | Samuel | 9 Fifth Cross | Washington | | 335 | Henry | Williams | 12Moore Street | Boston | | 403 | Ronny | Lee | 121 Harrison St. | New York | | 451 | Pat | Thompson | 11 Red Road | Paris |     DESIG   |  |  |  |  | | --- | --- | --- | --- | | W\_ID | SALARY | BENEFITS | DESIGNATION | | 102 | 75000 | 15000 | Manager | | 105 | 85000 | 25000 | Director | | 144 | 70000 | 15000 | Manager | | 210 | 75000 | 12500 | Manager | | 255 | 50000 | 12000 | Clerk | | 300 | 45000 | 10000 | Clerk | | 335 | 40000 | 10000 | Clerk | | 403 | 32000 | 7500 | Salesman | | 451 | 28000 | 7500 | Salesman |  1. To display the content of workers table in ascending order of first name. 2. To display the FIRSTNAME, CITY and TOTAL SALARY of all Clerks from the tables workers and design, where TOTAL SALARY = SALARY + BENEFITS. 3. To display the minimum SALARY among Managers and Clerks from the table DESIG. 4. Increase the BENEFITS of all Salesmen by 10% in table DESIG. 5. SELECT FIRSTNAME, SALARY FROM WORKERS, DESIG WHERE DESIGNATION = ‘Manager’ AND WORKERS.W\_ID = DESIG.W\_ID; 6. SELECT DESIGNATION, SUM(SALARY) FROM DESIG   GROUP BY DESIGNATION HAVING COUNT(\*)>=2 ; |
| **Q.6** | (a) State and verify the Absorption Law in Boolean Algebra.  (b) Draw the logic circuit diagram for the Boolean equation: (A+B’)(A’+B+C’)(A’+C’)  (using And/Or/Not Logic gates only)  (c) Write the Sum of Product form of the function H (U, V, W). Truth table representation of the function  H is as follows:  **U V W H**  0 0 0 0  0 0 1 0  0 1 0 1  0 1 1 0  1 0 0 1  1 0 1 0  1 1 0 1  1 1 1 1  (d) Minimize the following function using K- map and find out the expression  F(A, B, C, D) = ∑ (0, 2, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15) |
| **Q.7**  **(a)**  **(b)**  **(c)**  **(d)**  **(e)** | Differentiate between LAN & WAN?  Write a brief note on types of cables used in communication.  Define the following terms:   1. HTTP ii) DHTML   Differentiate between open source and free software? Give examples.  comp_science_04_clip_image004“Kanganalay Cosmetics” is planning to start their offices in four major cities in Uttar Pradesh to provide cosmetic product support in its retail fields. The company has planned to set up their offices in Lucknow at three different locations and have named them as “Head office”, “Sales office”, & “Prod office”. The company’s regional offices are located at Varanasi, Kanpur & Saharanpur. A rough layout of the same is as follows :        Approximate distances between these offices as per network survey team is as follows :   |  |  |  | | --- | --- | --- | | Place from | Place to | Distance | | Head office | Sales office | 150M | | Head office | Prod office | 80M | | Head office | Varanasi Office | 295 KM | | Head office | Kanpur Office | 195 KM | | Head office | Saharanpur  office | 408 KM |   Number of computers :   |  |  | | --- | --- | | Head office | 156 | | Sales office | 25 | | Prod office | 56 | | Varanasi Office | 85 | | Kanpur Office | 107 | | Saharanpur office | 105 |  1. Suggest the placement of the Server with justification in Lucknow city network. 2. Suggest the placement of repeaters and switches for the Lucknow city network. 3. If we connect all offices in UP in a network, then which type of this network is called? Also suggest a suitable way to connect them in most economical way. |

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