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RK Academy

One Step Ahead To Your Success...



SUB – IP
CLASS – XII

TIME – 3 HR
FM - 70

SECTION-A

Answer all the questions.

(21X1=21)

1. What does a modem do at the sender's end ?

- (A) It converts analog signals into digital data. (B) It converts digital data into analog signals.
(C) It converts digital data into optical signals. (D) It converts optical signals into digital data.

2. Which out of the following cannot be included in digital footprint ?

- (A) Submitting the form online (B) Searching for your friend's address online
(C) Walking on the beach (D) Online shopping

3. What will be the output of the following query ? `SELECT MOD (5, 15);`

- (A) 10 (B) 3 (C) 0 (D) 5

4. Which of the following aggregate function returns the average of values in a specified column of a MySQL table ?

- (A) `AVG(Column)` (B) `AVERAGE(Column)` (C) `MEAN(Column)` (D) `TOTAL(Column)`

5. For how long does a patent typically protect an invention ?

- (A) 5 years (B) 10 years (C) 20 years (D) 50 years

6. `Now()` in MySQL returns _____.

- (A) Today's date (B) Today's date and current time (C) System's date and time (D) Name of active database

7. What will be the output of the following query ? `SELECT SUBSTR("Swachh Survekshan",2,4)`

- (A) wac (B) wach (C) shan (D) achh

8. With respect to databases, a row in a relation is also known as a/an _____.

- (A) Attribute (B) Tuple (C) Field (D) Domain

9. Which of the following Internet services is used for instant messaging ?

- (A) Chat (B) Email (C) WWW (D) Python

10. What is the output of the following SQL Query ? `SELECT INSTR("KNOWLEDGE","E");`

- (A) 7 (B) 5 (C) 6 (D) – 6

11. Which of the following is not a feature of Open Source Software ?

- (A) It can be shared with others without any licensing burden. (B) It is same as free software.
(C) It can be downloaded on multiple devices. (D) Its source code is available for free distribution.

12. What is a common symptom of extended use of digital devices these days ?

- (A) Improved eyesight (B) Enhanced physical fitness (C) Eye strain (D) Increased muscle strength

13. Assertion (A) : Hacking is a cyber crime.

Reason (R) : To avoid hacking, one should not share the password with anyone.

- (A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(B) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).
(C) Assertion (A) is true, but Reason (R) is false.
(D) Assertion (A) is false, but Reason (R) is true.

14. What will be the result of the following SQL query? SELECT MOD(5, 6);

- (A) 3 (B) 5 (C) 6 (D) 0

15. Shruti received an email that appeared to be from a popular social media platform, requesting her to click a link to reset her password. The link directed her to a fraudulent website designed to capture her login credentials. This situation is an example of which type of cybercrime?

- (A) Cyber Bullying (B) Violation of Intellectual Property Rights (C) Hacking (D) Phishing

16. Which of the following device is used for converting digital signals from a computer into analog signals for transmission over a telephone line.

- (A) Modem (B) Switch (C) Repeater (D) Router

17. Aarushi has written a novel and wants to protect her literary work. Which type of Intellectual Property right will help her do that?

- (A) Patent (B) Copyright (C) Trademark (D) Both Copyright & Trademark

18. What is the purpose of the ROUND(num, 0) in SQL, assuming num is a number with a fractional part?

- (A) Rounds the number to the nearest integer (B) Always rounds the number up
(C) Leaves the number unchanged (D) Always rounds the number down

19. Which of the following is an application of VoIP technology?

- (A) Email (B) Chat (C) Internet Telephony (D) Web Browsing

20. Which of the following SQL function is used to count the non-NULL values in a column named column_name?

- (A) COUNT(*) (B) COUNT(column_name) (C) SUM(column_name) (D) AVG(column_name)

21. In India, the primary law that deals e-commerce and cybercrime is _____.

- (A) Cybercrime Prevention Act, 2000 (B) Digital Security Act, 2000
(C) Information Technology Act, 2000 (D) E-Commerce Regulation Act, 2008

SECTION-B

Give answers of any 7 questions out of 9 questions.

(7X2 = 14 MARKS)

22. What is e-waste? Mention any one impact of e-waste on the environment.

23. Explain the concept of VoIP and mention one benefit of using it.

24. Write SQL queries to perform the following:

Find and display the position of the substring "India" in the string "Incredible India"

25. Define digital footprints. Differentiate between active and passive digital footprints.

26. Write one function each for the following network devices : (i) MODEM (ii) Router

27. Write any one advantage and any one disadvantage of BUS topology.

28. Consider the string 'PAINTING'. Write the SQL commands to display the following output : (i) ING (ii) INT

29. Define the following terms : (i) Web Hosting (ii) WWW

30. Write any two differences between DELETE and DROP TABLE command of MySQL.

SECTION C

Give answers of any 4 questions out of 5 questions.

(4X3=12)

31. Consider the table BIKES given below : Table : BIKES

| Bid | Bikename | Brandname | Biketype | Cost |
|------|-------------|-----------|-----------|---------|
| 1001 | Dream Racer | Speedo | Super | 1980000 |
| 1002 | Splendid | Indiana | NULL | 50000 |
| 1003 | Silver Wing | Indiana | Touring | 2300000 |
| 1004 | ZZZZ | WMV | Sports | 1500000 |
| 1005 | CH2H | Speedo | Super | 470000 |
| 1006 | Astor | Victory | Normal | 1700000 |
| 1007 | CHANDRA | WMV | Adventure | 3000000 |
| 1008 | SWISS | WMV | Touring | 4200000 |
| 1009 | SWIFT | ROADY | Super | 1900000 |
| 1010 | CLOUD9 | GEM | Normal | 1700000 |

Write SQL commands for the following :

(i) Display Bikenames and their corresponding Brand names in descending order of cost.

(ii) Display Brandnames of bikes whose Biketype is not known.

(iii) Consider the following query :

```
SELECT*FROM BIKES WHERE Cost BETWEEN 200000 AND 3000000;
```

Write another query, using relational and logical operators which will produce the same output.

32. Predict the output of the following queries based on the table BIKES given above :

(i) SELECT UCASE(TRIM(Brandname)) FROM BIKES WHERE Bid = 1003;

(ii) SELECT COUNT(Biketype) FROM BIKES;

(iii) SELECT SUM(Cost), Brandname FROM BIKES GROUP BY Brandname Having Brandname = "WMV" OR Brandname = "Indiana";

33. Answer the following questions based on the table Sales given below : Table : Sales

| id | Name | City | Commission |
|------|-------------|------------|------------|
| E001 | Naman Batra | Chandigarh | 20 |
| E002 | Rupesh Mann | Delhi | 15 |
| E005 | Ravi Gautam | Mumbai | 25 |
| E006 | Mukul Singh | Delhi | 30 |
| E007 | Ruby Rai | Mumbai | 19 |
| E003 | Raman Roy | Kolkata | 16 |

(i) Suggest the Primary key for the given table ?

(ii) Write the SQL command to insert the following data in the table Sales :

id E009

Name Sukumar

City Nagpur

Commission 10

(iii) Is the command used in part (ii) a DDL or a DML command ?

34. Sarah works in a multinational IT firm. One day, she came to know that some mails were sent from her official mail account but she had not actually sent them. Based on the given information, answer the following questions :

(i) Sarah is a victim of which type of cybercrime ?

(ii) Write any two precautions that one should take to protect oneself from being the victim of cybercrime.

(iii) Should Sarah immediately change the password of her email account ?

35. Rahul has recently invented a new type of solar-powered water purification system and is concerned about the possibility of someone illegally copying and selling his invention without his permission.

- I. Explain Rahul the terms Intellectual Property & Intellectual Property Rights (IPR).
- II. Under which specific category of IPR is Rahul's invention covered?
- III. Describe the importance of IPR in safeguarding innovations.

SECTION-D

Give answers of any 2 questions out of 3 questions.

(2X4=08)

36. Raghav, who works as a database designer, has created a table Student as shown below: Table : Student

| StudentID | Name | City | Marks | Admission Date |
|-----------|--------------|-----------|-------|----------------|
| 101 | Aarav Sharma | Delhi | 85 | 2022-04-01 |
| 102 | Priya Iyer | Mumbai | 78 | 2021-05-15 |
| 103 | Rohan Verma | Bangalore | 92 | 2020-06-10 |
| 104 | Simran Patel | Delhi | 88 | 2022-03-20 |
| 105 | Karan Yadav | Mumbai | 75 | 2021-08-05 |

Write suitable SQL query for the following.

- I. Show the Name and City of the students, both in uppercase, sorted alphabetically by Name.
 - II. Display the Student ID along with the name of the month in which the student was admitted to the school.
 - III. Calculate and display the average marks obtained by students.
 - IV. Show the names of the cities and the number of students residing in the city.
37. What is topology? Describe the types of topology.
38. What is Computer network? Describe the types of computer network.

SECTION-E

Give answers of any 3 questions out of 4 questions.

(3X5=15)

39. Write suitable SQL query for the following:

- I. To extract the first five characters from the product_code column in the Products table.
- II. To display the total number of orders from Order_Id column in the Orders table.
- III. To display the year of the order dates from the order_date column in the Orders table.
- IV. To display the Address column from the Customers table after removing leading and trailing spaces
- V. To display the current date.

Table : Faculty

| F_Id | FacName | DoJ | Qualification | Salary |
|-------|--------------|------------|---------------|--------|
| Emp01 | Neeta Khanna | 2013-07-01 | MCA | 85000 |
| Emp02 | Sonia Chawla | 2023-05-05 | MA | 35000 |
| Emp03 | Sheetal | 2015-06-28 | MSc | 90000 |
| Emp04 | Bindu | 2016-03-30 | M.Com | 80000 |
| Emp05 | Sunidhi | 2002-06-28 | BA | 100000 |
| Emp06 | Ashish | 1999-07-01 | B.Com | 120000 |

Table : Batch

| Batchid | BatchName | F_Id | Daysperweek | Subjects |
|---------|-----------|-------|-------------|-------------|
| B01 | TXAlpha | Emp01 | 3 | English |
| B02 | TXBeta | Emp05 | 5 | Chemistry |
| B03 | TXGama | Emp02 | 4 | Physics |
| B04 | Super30 | Emp03 | 3 | Mathematics |
| B05 | G-20 | Emp04 | 2 | Economics |
| B06 | LXAlpha | Emp01 | 4 | Accountancy |

Write SQL queries for the following :

- (i) Display name and salary of all faculties in alphabetical order of their names.
- (ii) Display details of faculties who joined on Monday.
- (iii) Display names of faculties, their salary and BatchName from both the tables.
- (iv) Display the details of all faculties whose salary is more than 60000 and have joined before the year 2007.
- (v) Display the name of faculty who is taking TXAlpha Batch.

41. Write SQL queries for the following from the above table:

- (i) Display maximum days per week for each F_Id from the table Batch.
- (ii) Display names of faculties after removing leading and trailing spaces.
- (iii) Display total number of records in the table Faculty.
- (iv) Increase the salary by 25% of those employees whose qualification is MCA.
- (v) Delete the records of batches whose subject is English.

42. Differentiate between:

- a) MAN and WAN
- b) Website and web page
- c) Router and Gateway