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| **PB1/IPCQP/1223/B 20-NOV-2023** | | | | | |
| **PRE-BOARD EXAMINATION- I (2023-24)** | | | | | |
| **SUBJECT: INFORMATICS PRACTICES (C )**  **GRADE: XII** | | | MAX. MARKS: 70TIME:3 HOURS | | |
| **Name:** | | **Section:** | | **Roll No:** | |
| ***General Instructions:***  1. This question paper contains five sections, Section A to E.  2. All questions are compulsory.  3. Section A have 18 questions carrying 01 mark each.  4. Section B has 07 Very Short Answer type questions carrying 02 marks each.  5. Section C has 05 Short Answer type questions carrying 03 marks each.  6. Section D has 03 Long Answer type questions carrying 05 marks each.  7. Section E has 02 questions carrying 04 marks each.  8. All programming questions are to be answered using Python Language only | | | | | |
|  | **SECTION A** | | | |  |
| 1 | URLs are of two types:   1. Absolute & Relative 2. Static & Dynamic 3. Absolute and Dynamic 4. None of the above | | | | 1 |
| 2 | The sum() function is an example of  a) math functions  b) date functions  c) aggregate functions   1. string functions | | | | 1 |
| 3. | \_\_\_\_\_\_\_\_\_\_ is used to amplify weak signal?   1. Router 2. Repeater 3. Adapter 4. None of the above | | | | 1 |
| 4. | Which one of the following functions is used to count the no of rows from the given table in  MySQL?   1. COUNT(\* ) 2. CARDINALITY( ) 3. COUNT(Column name ) 4. All the above | | | | 1 |
| 5. | In this networking topology, each communicating device is connected with every other device in the network.   1. Star topology 2. Bus topology 3. Tree topology 4. Mesh Topology | | | | 1 |
| 6. | To display first element of a Series object S, you will write   1. S[:] 2. S[0] 3. S[1] 4. S[:2] | | | | 1 |
| 7. | Arshmeet’s is having his credit card and then he is getting some email from bank where they are asking the details of bank. This is known as \_\_\_\_\_\_\_\_\_\_\_\_\_  a) Phishing  b) Eavesdropping  c) Copyright infringement  d) Cyber crime | | | | 1 |
| 8 | Give the output of the following  SELECT ROUND(3234.743);  a) 3234.8  b) 3235  c) 3234.7  d) None of the above | | | | 1 |
| 9. | object that cannot grow in size.   1. Pandas Dataframe 2. Panel 3. Series 4. None of these | | | | 1 |
| 10. | Write the output of the following SQL command.  SELECT MOD (len(“CBSE IP”),instr(“Hello”,”o”));  a) 5  b) 2  c) 10  d) 50 | | | | 1 |
| 11. | Which of the following is not an attribute of pandas data frame?   1. length 2. T 3. Size 4. Shape | | | | 1 |
| 12. | which protocol allow us to have voice calls over the internet?   1. HTTP 2. VoIP 3. Video Chat 4. SMTP | | | | 1 |
| 13. | A social science teacher wants to use a pandas series to teach about Indian historical monuments and its states. The series should have the monument names as values and state names as indexes which are stored in the given lists, as shown in the code. Choose the statement which will create the series:  import pandas as pd  Monument=['Qutub Minar','Gateway of India','Red Fort','TajMahal']  State=['Delhi','Maharashtra','Delhi','Uttar Pradesh']   1. S=df.series(Monument,index=State) 2. S=pd.Series(State,Monument) 3. S=pd.Series(Monument,index=State) 4. d. S=pd.series(Monument,State) | | | | 1 |
| 14. | Write the output of the given program:  import pandas as pd  S1=pd.Series([5,6,7,8,10],index=['v','w','x','y','z'])  l=[2,6,1,4,6]  S2=pd.Series(l,index=['z','y','a','w','v'])  print(S1-S2)  a)  a 0  v -1.0  w 2.0  x NaN  y 2.0  z 8.0  dtype: float64  b)  a NaN  v -1.0  w 2.0  x NaN  y 2.0  z 8.0  dtype: float64  c)  v -1.0  w 2.0  y 2.0  z 8.0  dtype: float64  d)  a NaN  v -1.0  w 2.0  x 3.0  y 2.0  z 8.0  dtype: float64 | | | | 1 |
| 15. | Complete the query **select \_\_\_\_\_\_\_('2023-11-05')+1;** so that it returns 12   1. Month 2. Day 3. Year 4. Dayofweek | | | | 1 |
| 16. | What will be the output of the following query  Select pow(instr(‘informatics practices’,’info’),2);   1. 1 2. 2 3. 3 4. 0 | | | |  |
|  | Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as  i. Both A and R are true and R is the correct explanation for A  ii. Both A and R are true and R is not the correct explanation for A  iii. A is True but R is False  iv. A is false but R is True | | | |  |
| 17. | Assertion (A): - A web server is used to store and deliver the contents of a website to clients such as a browser that request it.  Reasoning (R):- A web server can be software or hardware. | | | |  |
| 18. | Assertion (A):- DataFrame is size mutable.  Reasoning (R): - Dataframe capable of holding multiple type of data. | | | |  |
|  | **SECTION B** | | | |  |
| 19. | With reference to browsing the websites, briefly explain the term cookie. Also mention any two points of significance of it.  Or  What is the difference between white hat hacker and black hat hacker? | | | | 2 |
| 20. | Anjali writes the following commands with respect to a table employee having fields, empno,name, department, commission.  Command1 : Select count(\*) from employee;  Command2: Select count(commission) from employee;  She gets the output as 4 for the first command but gets an output 3 for the second command. Explain the output with justification. | | | | 2 |
| 21. | Given two series S1 and S2  S1 S2  A 39 A 10  B 41 B 10  C 42 D 10  D 44 F 10  Find the output for following python pandas statements?  a. S1[ : 2]\*100  b. S1 \* S2 | | | | 2 |
| 22. | Ritika is a new learner for the python pandas, and she is aware of some concepts of python. She has created some lists, but is unable to create the data frame from the same. Help her by identifying the statement which are blank  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Name=['Manpreet','Kavil','Manu','Ria']  Phy=[70,60,76,89]  Chem=[30,70,50,65]  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | 2 |
| 23. | Differentiate between loc() and iloc(). | | | | 2 |
| 24. | What will be the output of the following code:  >>>import pandas as pd  >>>Ser=pd.Series(data=[35,45,55,40])  >>>print(A[A>45])  >>>print(A>45) | | | | 2 |
| 25. | Consider the following DataFrame df and answer the questions.  Name Mark1 Mark2  0 Aamir 22 33  1 Nuzut 42 52  2 Ishrar 34 23  3 Shahid 45 65  4 Furkan 23 56  5 Fatima 45 45  6 Rashid 34 45   1. Rhan wants to add a column called total that is sum of Mark1 and Mark2. Write the statement for same. 2. Write the statement to display name and total. | | | | 2 |
|  | **SECTION C** | | | |  |
| 26. | Help Mr.Rao in Predicting the output of the following:   1. SELECT LENGTH(instr('Republic Day'," ")); 2. SELECT MID('information',3,2); 3. select length( substr(lower('abc 123'),1,3)); | | | | 3 |
| 27. | Create a DataFrame in Python from the given list: [[‘Divya’,’HR’,95000],[‘Mamta’,’Marketing’,97000],[‘Payal’,’IT’,980000], [‘Deepak’,’Sales’,79000]] Also give appropriate column headings as shown below: | | | | 3 |
| 28. | Consider the given DataFrame ‘Movie’:  Name Price  0 Dilwale 150  1 Pukar 180  2 Kahani 225  3 Jab we met 500  Write suitable Python statements for the following:  i. Display the records of Dilwale and Pukar.  ii. Delete the column price.  iii. Display column labels. | | | | 3 |
| 29. | Write the differences between the following —  a) Copyrights and Patents  b) Active and Passive footprint  OR  Richa, recently started using her social media account. Within a few days, she befriends many people she knows and some that she does not know. After some time, she starts getting negative comments on her posts. She also finds that her pictures are being shared online without her permission.Based on the given information, answer the questions given below.  i. Identify the type of cybercrime she is a victim of.  ii. Under which act, she can lodge a complaint to the relevant authorities?  iii. Suggest her any two precautionary measures which she should take in future while being online to avoid any such situations. | | | | 3 |
| 30. | Mrs. Dutta a class teacher in “South Point School ” has created the following table to store the records of students:  **Student**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Admn | Name | Stream | Optional | Average | | 1001 | Shrishti | Science | CS | 90 | | 1002 | Ashi | Humanities | Maths | 80 | | 1003 | Aditya | Commerce | IP | 60 | | 1004 | Ritu Raj | Science | IP | 65 | | 1005 | Sonali | Commerce | Maths | 60 | | 1006 | Saumya | Science | IP | 65 |   She has written following queries. Give output of same.   1. Select left(name,3) from student where Average!=60 2. Select mid(DISTINCT stream,2,3) from student; 3. Select count(\*) as ‘sutdents in optional’ , optional from student group by optional;   OR  Based on the table given above, help Mrs. Dutta writing queries for the following task:   1. To display the name of student getting highest average . 2. To display the names of those students where names contain the letter ‘i’ in the third position.   iii) To display the names of students whose average marks is more than 60. | | | | 3 |
|  | **SECTION D** | | | |  |
| 31. | Observe the following tables, EMPLOYEES and DEPARTMENT carefully and answer the questions that follow :  Consider the following table Employee   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | No | Name | Salary | Zone | Age | Grade | Dept | | 1 | Mukul | 30000 | West | 28 | A | 10 | | 2 | Kritika | 35000 | Centre | 30 | A | 10 | | 3 | Naveen | 32000 | West | 40 |  | 20 | | 4 | Uday | 38000 | North | 38 | C | 30 | | 5 | Nupur | 32000 | East | 26 |  | 20 | | 6 | Mokesh | 37000 | South | 28 | B | 10 | | 7 | Shelly | 36000 | North | 26 | A | 30 |   Based on this table write SQL statements for the following queries: -   * + 1. To display the total salary for all the employees who are from West zone.     2. To count no of employees without any grade.     3. To display zone wise highest salary and lowest salary.     4. Give the degree and cardinality of the table. | | | | 4 |
| 32. | Mr. Ankit is working in an organization as data analyst. He uses Python Pandas and Matplotlib for the same. He got a dataset of the passengers for the year 2010to 2012 for January, March and December. His manager wants certain information from him, but he is facing some problems. Help him by answering few questions givenbelow:   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | **Year** | **Month** | **Passenger(I)** | **Passenger(II)** | **Code** | | **A** | 2010 | Jan | 25 | 12 | A01 | | **B** | 2010 | March | 50 | 5 | A02 | | **C** | 2012 | Jan | 35 | 13 | A03 | | **D** | 2010 | Dec | 55 | 17 | A04 | | **E** | 2012 | Dec | 65 | 13 | A05 | | **F** | 2015 | Jan | 34 | 23 | A08 |  1. Predict the output of the following python statement: 2. df.shape 3. df[1:3] 4. Write Python statement to display the data of Month column of indexes C to E.   **OR (Option for part B only)**  Write Python statement to compute and display the difference of data of Passenger(I) column and Passenger (II) column of the above given DataFrame. | | | | 4 |
|  | **SECTION – E** | | | |  |
| 33. | 1. Consider the following table –Person  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | PID | PName | DOB | Gender | Address | Salary | | P101 | RRajkumar | 1977-01-12 | M | Delhi | 45678.99 | | P102 | S Singh | 1965-12-31 | M | Delhi | 78954.50 | | P103 | R Shukla | 1987-11-23 | F | Mumbai | 23456.00 | | P104 | K Kamal | 1999-05-21 | M | Mumbai | 43222.99 | | P105 | A Bose | 1989-01-01 | F | Kolkota | 31000.00 |   Write SQL queries for the following:   1. To display the records in decreasing order of Salary. 2. To display Address and Address wise total number of persons. 3. To display the Address and its total salary. 4. To display Address and Address wise oldest person’s age. 5. To display the name and annual salary for all employees. Assuming salary is paid every month.   OR Table : TRANSPORTER  |  |  |  |  |  | | --- | --- | --- | --- | --- | | ORDERNO | DRIVERNAME | SALARY | ITEM | TRAVELDATE | | 10012 | RAM YADAV | 9876.99 | TELEVISION | 2019-04-19 | | 10014 | SOMNATH SINGH | 12345.50 | FURNITURE | 2020-01-12 | | 10016 | MOHAN VERMA | 15999.50 | WASHING MACHINE | 2019-06-06 | | 10018 | RISHI SINGH | 6575.99 | REFRIGERATOR | 2020-04-07 |   Rashmi has written following queries. Give the output of each query.  ( i) select sum(SALARY) from TRANSPORTER where YEAR(TRAVELDATE)=2019;   1. select max(SALARY)+min(SALARY) from TRANSPORTER where LENGTH(ITEM)>=10; 2. select avg(SALARY) from TRANSPORTER where RIGHT(DRIVERNAME,1)=’H’; 3. select instr(DRIVERNAME,’M’) from TRANSPORTER where MONTHNAME(TRAVELDATE)=’April’; 4. select length(drivername) from transporter where salary>10,000; | | | | 5 |
| 34. | Based on the above specifications, answer the following questions :   1. Suggest the topology and draw the most suitable cable layout for connecting all the divisions of Delhi branch.   (ii) Suggest the kind of network required (out of LAN, MAN, WAN) for connecting Production (A3) with the Bangalore branch.  (iii) Which device can be used to connect the network of Delhi Branch to the Internet ? This device should be able to receive data, analyse it and then transmit it to the network.  (iv) Suggest the placement of switch/hub with justification.  (v) Many employees were finding it difficult to cope up with work pressure and hence were showing stress related symptoms. In order to improve the mental health of its employees, HR planned to conduct an online session with a mental health expert from Mumbai. Out of the options given below, suggest the protocol that will help to send the voice signals over internet to conduct the session successfully.  (a) FTP (b) SMTP (c) VOIP (d) POP | | | | 5 |
| 35. | Write a script to draw a bar chart by importing appropriate package:   1. X axis will represent weight   ii. Y axis will represent height  iii. X axis label should be “Weight in kg”  iv. Y axis label should be “Height in cm”  v. Colour of the line should be green  vi. Use \* as marker  vii. Marker size as10  viii. The title of the chart should be “Average weight with respect to average height”.  (X and Y values -use appropriate values)  OR | | | | 5 |
|  | Create a bar Graph as shown in below pic | | | |  |

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