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| **PB/IPC/1220/A 18/01/2021** | | | | | |
| **PREBOARD EXAMINATION (2020-21)** | | | | | |
| **SUBJECT: INFORMATICS PRACTICES (C )**  **GRADE: XII** | | | MAX. MARKS: 70TIME:3 HOURS | | |
| **Name:** | | **Section:** | | **Roll No:** | |
| **General Instructions:**   * This question paper contains two parts A and B. Each part is compulsory. * Both Part A and Part B have choices. * Part-A has 2 sections:   a. Section – I is short answer questions, to be answered in one word or one line.  b. Section – II has two case studies questions. Each case study has 4 case-based subparts.  An examinee is to attempt any 4 out of the 5 subparts.   * Part - B is Descriptive Paper. * Part- B has three sections * a. Section-I is short answer questions of 2 marks each in which one questions have internal options. * b. Section-II is long answer questions of 3 marks each * c. Section-III is very long answer questions of 5 marks each * All answers to be written in the answer sheet provided. | | | | | |
|  | **PART A** | | | |  |
|  | **SECTION I**  **Attempt any 15 questions from questions 1 to 21** | | | |  |
| 1 | You are planning to go for a vacation. You surfed the Internet to get answers for the following queries:  a) Weather conditions  b) Availability of air tickets and fares  c) Places to visit  d) Best hotel deals  Which of your above mentioned actions might have created a digital footprint? | | | | 1 |
| 2 | Which of the following is a network topology :   1. LAN 2. Mesh 3. Fibre Optics 4. None of the above | | | | 1 |
| 3. | Which statement is used to add records in to a table?   1. add 2. append 3. insert 4. addnew | | | | 1 |
| 4. | Write the SQL command that will display the current time and date | | | | 1 |
| 5. | The SQL statement to display the position of "Exam" in "CBSEBoardExam".   1. Select Inpos(‘CBSEBoardExam’.’Exam’) 2. Select instr(‘CBSEBoardExam’.’Exam’) 3. Select substr(‘CBSEBoardExam’.’Exam’) 4. Select strpos(‘CBSEBoardExam’.’Exam’) | | | | 1 |
| 6. | Which amongst the following is an example of open source operating system?   1. Windows 2. Firefox 3. Safari 4. Linux | | | | 1 |
| 7. | Which is a python package used for 2D graphics?   1. matplotlib.plt 2. matplotlib.pyplot 3. matplotlib.pip 4. matplotlib.numpy | | | | 1 |
| 8. | Suhana is down with fever. So she decided not to go to school tomorrow. Next day, in the evening she called up her classmate, Shaurya and enquired Notes about the computer class. She also requested him to explain the concept. Shaurya said, “Mam taught us how to use strings in python”. Further, he generously said, “Give me some time, I will email you the material which will help you to understand tuples in python”. Shaurya quickly downloaded a 2-minute clip from the Internet explaining the concept of tuples in python. Using video editor, he added the text “Prepared by Shaurya” in the downloaded video clip. Then, he emailed the modified video clip to Suhana. This act of Shaurya is an example of:  a) Fair use  b) Hacking  c) Copyright infringement  d) Cyber crime | | | | 1 |
| 9. | Read the statements given below. Identify the right option from the following for line chart.  Statement A: To make a line chart with Matplotlib, we can use the plt.line() function.  Statement B: This chart is often used to visualize a trend in data over intervals of time.   1. Statement A is correct 2. Statement B is correct 3. Both the statements are correct 4. Both the statements are wrong | | | | 1 |
| 10. | Given a Pandas series called S, the command which will display the last 5 rows :   1. print(S.head()) 2. print(S.Tail(5)) 3. print(S.tail(5)) 4. Both a and c | | | | 1 |
| 11 | To prevent unauthorized access to and / or from the network, a system known as \_\_\_\_\_\_\_\_\_\_\_\_, can be implemented by hardware and / or software. | | | | 1 |
| 12. | In a DataFrame, Axis= 1 represents the\_\_\_\_\_\_\_\_\_\_\_\_\_ elements. | | | | 1 |
| 13. | Write a suitable Python code to create an empty dataframe. | | | | 1 |
| 14. | Which method is used to explain what each line means in the current figure.   1. legend( ) 2. show( ) 3. save( ) 4. plot( ) | | | | 1 |
| 15. | What out of the following, you will use to have an audio-visual chat with an expert sitting in a faraway place to fix-up a technical issue:   1. email 2. VOIP 3. Telnet 4. FTP | | | | 1 |
| 16. | What will be the output of the following program  import pandas as pd  s1=pd.Series(['1','2','3'])  s2=pd.Series(['11','22','33'])  print(s1+s2) | | | | 1 |
| 17. | Write a statement to display the series where the letter equal to ‘n’ based on following ser  import pandas as pd  list = ['p', 'y', 't', 'h', 'o','n']  ser = pd.Series(list) | | | | 1 |
| 18. | What will be the output of the following code  import pandas as pd  data = {'Name':['Tom', 'Jack', 'Steve', 'Ricky'],'Age':[28,34,29,42]}  df = pd.DataFrame(data, index=['rank1','rank2','rank3','rank4'])  print(df) | | | | 1 |
| 19. | Which of the following is not an intellectual property?   1. A poem written by a poet 2. An original painting made by a painter 3. Trademark of a Company 4. A remixed song | | | | 1 |
| 20. | Complete the query **select \_\_\_\_\_\_\_('2020-05-11')+1;** so that it returns 6   1. Month 2. Day 3. Year 4. Dayofweek | | | | 1 |
| 21. | An organisation purchases new computers every year and dumps the old ones into the local dumping yard. Write the name of the most appropriate category of waste that the organisation is creating every year, out of the following options   1. Solid Waste 2. Commercial Waste 3. E-Waste 4. Business Waste | | | | 1 |
|  | **SECTION II**  Qn 22 &23 are compulsory. Attempt any 4 sub parts from each question. | | | |  |
| 22 | Consider the following DataFrame df and answer any four questions from (i)-(v) | | | |  |
| i) | Write down the command that will give the following output.     1. print(df.max) 2. print(df.max()) 3. print(df.max(axis=1)) 4. print(df.max, axis=1) | | | |  |
| ii) | To display the city and temperature   1. print(df(‘City’,’Temperature’) 2. print(df[['City','Temperature]]) 3. print(df['City','Temperature']) 4. print(df(city,temperature)) | | | |  |
| iii) | Which of the following statement/s will give the exact number of values in each column of the dataframe?   1. print(df.count()) 2. print(df.number()) 3. print(df.count) 4. print(df.count(axis=’index’)) | | | |  |
| iv) | Which of the following command will display the column labels of the DataFrame?   1. print(df.columns()) 2. print(df.column()) 3. print(df.column) 4. print(df.columns) | | | |  |
| (v) | Ms. Sharma, wants to add a new column, Precipitation with the values,10,0,12,13 to the DataFrame. Help her choose the command to do so:   1. df.column=[10,0,12,13] 2. df [’Precipitation’]=[10,0,12,13] 3. df.loc[’Precipitation’]= [10,0,12,13] 4. Both (b) and (c) are correct | | | |  |
| 23. | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | No. | Name | Age | Department | DOJ | Salary | Gender | | 1 | Jugal | 33 | Computer | 2007-01-10 | 12000 | M | | 2 | Sharmila | 31 | History | 2008-03-23 | 20000 | F | | 3 | Sandeep | 32 | Maths | 2006-12-12 | 20000 | M | | 4 | Sangeeta | 35 | History | 2009-07-01 | 40000 | F | | 5 | Rakesh | 42 | Maths | 2007-09-05 | 25000 | M | | 7 | Sarat | 44 | Computer | 2007-02-25 | 21000 | M |   Select correct options for the following based on Teacher table given | | | |  |
| i) | Display the name of teachers joined in the year 2008.   1. Select name from teacher where doj=’2008’; 2. Select name from teacher where doj like ‘2008’; 3. Select name from teacher where doj like ‘2008%’; 4. Select name from teacher where doj = ‘2008%’; | | | | 1 |
| ii) | Count the number of teachers whose name have “h” as second letter   1. Select count(name) from Teacher where name =’\_h%’; 2. Select count(name) from Teacher where name =’h%’; 3. Select count(name) from Teacher where name like ’h%’; 4. Select count(name) from Teacher where name like ’%h%’; | | | | 1 |
| iii) | Display Name, age, Salary in the descending order of age and ascending order of salary   1. Select name, age, salary from teacher order by age desc and salary; 2. Select name, age, salary from teacher order by age desc , salary; 3. Select name, age, salary from teacher order by age desc, salary asc; 4. Both b and c | | | | 1 |
| iv) | Help Ritesh to write the command to display the name of the recently joined teacher.   1. select name,min(DOJ) from teacher ; 2. select name,max(DOJ) from teacher; 3. select name,min(DOJ) from teacher group by name ; 4. select name,maximum(DOJ) from teacher; | | | | 1 |
| v) | Display name from teacher table who have "at" in the second position in their names   1. Select name from teacher where name=’\_at’; 2. Select name from teacher where name=’\_at%’; 3. Select name from teacher where instr(name,2)=’at’; 4. Select name from teacher where instr(name,’at’)=2; | | | |  |
|  | **PART B** | | | |  |
|  | **SECTION 1** | | | |  |
| 24. | Write a Python program to create a series that stores the marks of each subject. Assume there are 5 subjects “English”,”B.Studies”,”Accounts”,”Maths”,”Mktg” . The marks are 75,80,45,95,78 respectively. The index number will be the subject name. | | | | 2 |
| 25. | Explain the difference between DDL and DML and also write the sql commands for each.  OR  Shewani has recently started working in MySQL. Help her in understanding the difference between the following   1. Where and having clause 2. Count(column\_name) and count(\*) | | | | 2 |
| 26. | Consider the decimal number x with value 8459.2654. Write commands in SQL   1. truncate it off to a whole number 2. truncate it to 2 places before the decimal. | | | | 2 |
| 27. | Find the Output of following :  (i) select concat(left('Team',2),right('Work',1));  (ii) select round(4567.132,-1);  (iii)select monthname(now());  (iv)select dayofyear(curdate()); | | | | 2 |
| 28. | Define cookies. Give two practical applications that require the use of cookies. | | | | 2 |
| 29. | Ms Samtha has many electronics gadgets which are not usable due to outdated hardware and software. Help her to find any three best ways to dispose the used electronic gadgets | | | | 2 |
| 30. | Create a table name as Department with the following structure :  Field Name Field Type Constraint  DEPTNO Integer PRIMARY KEY  DNAME Varchar(14) NOT NULL  LOC Varchar(13)  Salary Integer | | | | 2 |
| 31. | Consider the following scenario and answer the questions which follow :  ‘‘A student is expected to write a research paper on a topic. The student had a friend who took a similar class five years ago. The student asks his older friend for a copy of his paper and then takes the paper and submits the entire paper as his own research work.’’   1. Which of the following activities appropriately categorises the act of the writer   (A) Plagiarism  (B) Spamming  (C) Virus  (D) Phishing   1. Which kind of offense out of the following is made by the student ?   (A) Cyber Crime  (B) Civil Crime  (C) Violation of Intellectual Property Rights | | | | 2 |
| 32. | What happens to the Network with Star topology if the following happens :   1. One of the computers on the network fails ? 2. The central hub or switch to which all computers are connected, fails | | | | 2 |
| 33. | How would you recognise if one of your friends is being cyber bullied?  a) Cite the online activities which would help you detect that your friend is being cyber bullied?  b) What provisions are in IT Act 2000, (amended in 2008) to combact such situations. | | | | 2 |
|  | **SECTION II** | | | |  |
| 34. | Write the purpose of the following devices :  1) Network Interface Card  2) Repeater  3) Modem | | | | 3 |
| 35. | Explain the term digital foot prints. Specify two types of digital foot prints with suitable example. | | | | 3 |
| 36. | Write a script to draw a bar chart by importing appropriate package:   1. The title of the bar chart is ' ODI Scores' 2. teams=['MUMBAI', 'DELHI', 'RAJASTAN', 'KOLKATA', 'GOA'] X-axis 3. runs=[88, 78, 102, 43, 85] as the values for y-axis 4. Label x-axis as 'Teams' 5. Label y-axis as 'Runs' 6. Plot the bar chart 7. Display the bar chart on the screen   OR | | | | 3 |
|  | Create a line Graph | | | |  |
| 37. | Observe the following tables, EMPLOYEES and DEPARTMENT carefully and answer the questions that follow :     1. Give the Degree of the table EMPLOYEE & the cardinality of the table DEPARTMENT. 2. Differentiate between Primary Key and Foreign Key. 3. Specify the Primary key and Foreign key of Table employees | | | | 3 |
|  | **SECTION III** | | | |  |
| 38. | Write a program to create a dataframe for the following and perform the following.  Name Marks1 Marks2  0 Amit 10 20  1 Jeevan 12 30  2 Rani 14 40  3 Pranav 16 50   1. Add a new column Average to store the average of both the marks. 2. Display the dataframe in ascending order of average 3. Display the details of Jeevan | | | | 5 |
| 39. | **Consider the following table.**  **Loan\_accounts**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | AcNo | Cust\_name | Loanamount | IntRate | StartDate | Type | | 1 | Mr.R.K.Gupta | 300000 | 12.00 | 2019-07-19 | HouseLoan | | 2 | Mr.S.P.Sharma | 500000 | 10.00 | 2018-03-22 | VehicleLoan | | 3 | Ms.K.P.Jain | 300000 | NULL | 2017-03-08 | HouseLoan | | 4 | Mr.M.P.Yadav | 800000 | 10.00 | 2018-12-06 | HouseLoan | | 5 | Mr.S.P.Sinha | 200000 | 12.50 | 2020-01-03 | VehicleLoan | | 6 | Mr.P.Sharma | 700000 | 12.50 | 2018-06-05 | HouseLoan | | 7 | Ms.Shanu | 500000 | NULL | 2016-03-05 | GoldLoan |   Write MySQL commands for the following   1. Display the IntRate of all the loans started in 2018. 2. Display the details of all the loans whose rate of interest is not NULL. 3. Display the total loan amount for each loan type. 4. Display names of female customers. 5. Display the AcNo, Cust\_Name, and Loan\_Amount for all the loans for which the Cust\_Name does not contain 'Y'. | | | | 5 |
| 40. | Ayurveda Training Educational Institute is setting up its centre in Hyderabad with four specialised departments for Orthopedics, Neurology and Pediatrics along with an administrative office in separate buildings. The physical distances between these department buildings and the number of computers to be installed in these departments and administrative office as given as follows. You as a network expert have to answer the queries as raised by them in (i) to (v).  Shortest distances between various locations in metres :   |  |  | | --- | --- | | Administrative Office to Orthopedics Unit | 55 | | Neurology Unit to Administrative Office | 30 | | Orthopedics Unit to Neurology Unit | 70 | | Pediatrics Unit to Neurology Unit | 50 | | Pediatrics Unit to Administrative Office | 40 | | Pediatrics Unit to Orthopedics Unit | 110 |   Number of Computers installed at various locations are as follows :   |  |  | | --- | --- | | Pediatrics Unit | 40 | | Administrative Office | 140 | | Neurology | 50 | | Orthopedics Unit 80 | 80 |      1. Suggest a suitable Topology for Networking the computer of all wings 2. Name the wing where the server is to be installed. Justify your answer. 3. Suggest the devices to be installed in each of these buildings for connecting computers installed within the building out of the following:   ● Gateway  ● Modem  ● Switch   1. Suggest the topology of the network and network cable for efficiently connecting each computer installed in each of the buildings out of the following:   Topologies : Bus topology, Star Topology  Network Cable: Single Pair Telephone Cable, Coaxial Cable, Ethernet Cable  v) Write the name of the type of network out of the following, which will be formed by connecting all the computer systems across the network :  (A) WAN  (B) MAN  (C) LAN  (D) PAN | | | | 5 |
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