 **Indian School Al Wadi Al Kabir**

**SAMPLE PAPER 3 (2023-24)**

**INFORMATICS PRACTICES (Code: 065)**

CLASS : XII Max. Marks:70

 Time: 3 hours

**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. One internal choice is given in Q35 against part c only.
8. All programming questions are to be answered using Python Language only.

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|  | **PART A** |  |
| 1. |  Which device regenerates and retransmits a weak signal? i. Router ii. Hub iii. Repeater iv. RJ-45  | 1 |
| 2. | An act of stealing others Intellectual Property without their consent of without citing the source is called.i. Plagiarism ii. Hacking iii. Phishing iv. Bullying  | 1 |
| 3. | Which of the following is an open-source software?i. Microsoft Windowsii. Adobe Photoshop iii. Adobe Photoshop iv. MySQL | 1 |
| 4. | Which of the following is the correct syntax of LCASE( ) function?i. LCASE(row\_name)ii. LCE(column\_name)iii. LCASE(str/column\_name) iv. None of the above | 1 |
| 5. | Which of the following function returns an integer that indicates the position of the first occurrence ofthe sub-string within the string?i. INSTR( ) ii. RTRIM( ) iii. LENGTH( ) iv. TRIM( ) | 1 |
| 6. |  Which of the following is NOT an intellectual property? 1 i. A poem written by a poet ii. An original painting made by a painter iii. Trademark of a Company iv. A remixed song | 1 |
| 7. | The default date format isi. MM-DD-YYYY ii. YYYY-MM-DD iii. DD-MM-YYYY  iv. None of these | 1 |
| 8. | Which of the following is not a text function: i. TRIM()ii. TRUNCATE()iii. LEFT() iv. MID() | 1 |
| 9. | Which of the following communication mediums will offer the highest bandwidth?i. Optical Fibreii. Shielded Twisted Pairiii. Unshielded Twisted Pair iv. Coaxial cable | 1 |
| 10. | He wants to rename the column M1 to MT1, which command should he execute?  i. df=df.rename(columns={'M1':'MT1'})  ii. df=df.rename({'M1':'MT1'})  iii. df=df.rename(columns={'M1':'MT1'},inplace=True)  iv. df=df.rename(column={'M1':'MT1'}) | 1 |
| 11. | Which of the following is not a valid line style in matplotlib? i. ‘-’ ii. ‘--’ iii. ‘-.’ iv. ‘<’ | 1 |
| 12. | Consider a Data Frame containing three columns C1, C2 and C3, which of the below given commands can be used to delete the column C3?  i. del df.C3  ii. del df.loc[:,'C3']  iii. del df.iloc[:,2]  iv. del df['C3'] | 1 |
| 13. | A software that can be freely accessed and modified is called:  i. Synchronous software  ii. Package software  iii. Open source software  iv. Middleware  | 1 |
| 14. | Write the output of the following command? select round(123.789,-2); i. 100 ii. 120 iii. 123.78 iv. 123.80 | 1 |
| 15. | What is meant by term cyber crime: i. Any crime that use computer to jeopardise or attempt to jeopardise national security ii. The use of computer network to commit financial or identity fraud iii. The theft of digital information iv. Any crime that involves computers and networks | 1 |
| 16. | Jhilmalini has stolen a credit card. She used that credit card to purchase a laptop. What type of offence has she committed?i. Cyber Fraud ii. Identity Theft iii. Hacking iv. Stealing of Card | 1 |
| Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice asi. Both A and R are true and R is the correct explanation for Aii. Both A and R are true and R is not the correct explanation for Aiii. A is True but R is Falseiv. A is false but R is True |
| 17. | **Assertion (A):** Amit has stolen the content of a research paper and published it online. Amit has performed cybercrime. **Reason (R):** Plagiarism is the act of stealing someone’s work and presenting it as one’s own work.  | 1 |
| 18. | **Assertion (A):** A series object is size mutable. **Reason (R):** A data frame is value mutable. | 1 |
|  | **PART B** |  |
| 19. | What is website? Differentiate between static and dynamic pages. **OR** What is server ? Differentiate between website and web server | 2 |
| 20. | Akash writes the following commands for a student table having attributes roll, name, age and class.Command1: select count(\*) from studentCommand2: select count(age) from student.He gets the output 10 for the first command but gets an output 8 for the second command. Explain the reason behind this difference. | 2 |
| 21. | What is the purpose of Group By clause in SQL? Explain with the help of suitable example. | 2 |
| 22. | Write a program to create a series object using a dictionary that stores the product and its price for 5 such product. | 2 |
| 23. | What is Phishing ?ORMention any 4 health concerns related to overuse of technology . | 2 |
| 24. | What will be the output of the following code?**>>>import pandas as pd****>>>A=pd.Series(data= [35,45,55,40])****>>>print(A[A>45])** | 2 |
| 25. | Carefully observe the following code:**import pandas as pd****C1={'A':10,'B':6,'C':12,'D': 18}****C2={'A' :13000,'B':14000,'D':12000}****FINAL={1:C1,2:C2} df=pd.DataFrame(FINAL) print(df)****Answer the following:**1. List the index of the DataFrame df

List the column names of DataFrame df. | 2 |
|  | **SECTION C** |  |
| 26. | Predict the output of below given SQL queries a. select length(ltrim(" ABCD EFGH ")); b. select length(trim(" ABCD EFGH ")); c. select power(instr(lower('A@123'),'2'),instr(lower('A@123'),'3')); | 3 |
| 27. | Write a Python code to create a DataFrame with appropriate column headings from the list given below:**[[‘A’,’RAM’,23],[‘B’,’SONI’,65],[‘C’,’CHANDNI’,43]]** | 3 |
| 28. | Suppose a data frame contains information about student having columns:  i. Write the code for adding one more column as fee ii. Write the code to transpose data frame iii. Write the code to delete column fee of data frame | 3 |
| 29. |  Give any three applications on the Internet.**OR** List any 3 Net Etiquettes related to use of Internet Technology. | 3 |
| 30. | **A relation Vehicles is given below:** **Write SQL Commands to:**(a) Display the average price of each type of vehicle having quantity more than 20. (b) Count the type of vehicles manufactured by each company. (c) Display the total price of all the types of vehicles.**OR**Discuss the significance of Order by clause in detail with the help of suitable example. | 3 |
|  | **SECTION D** |  |
| 31 | Write suitable SQL query for the following:i. Display 5 characters extracted from 12th left character onwards from the string ‘ARTIFICIAL INTELLIGENCE’.ii. Display the position of occurrence of string ‘DIO’ in the string ‘VISUAL STUDIO’.iii. Round off the value 7854.2965 to two decimal place.iv. Display the remainder of 75 divided by 7.v. Remove all the leading paces from a column SurName of the table ‘CANDIDATES’.ORExplain the following SQL functions using suitable examples.i. LCASE()ii. RTRIM()iii. SUBSTR()iv. MONTH()v. ROUND(458.428,1) | 5 |
| 32 | The Cyber Mind Organization has set up its new branch at Mizoram for its office and web-based activities It has four wings of buildings as shown in the diagram. Wing yWing Z Wing XWing U**Centre to Center distances between various blocks** :

|  |  |
| --- | --- |
| **Wings** | **Distance** |
| X to Z | 40 m |
| Z to Y | 60 m |
| Y to X | 135 m |
| Y to U | 70 m |
| X to U | 165 m |
| Z to U | 80 m |

 **Number of Computers**

|  |  |
| --- | --- |
| **Wings** | **No. of Computers** |
| Wing X | 50 |
| Wing Z | 130 |
| Wing Y | 40 |
| Wing U | 15 |

1. Suggest a most suitable cable layout of connection between the Wings and Topology.
2. Suggest the most suitable place (i.e., Wing) to house the server of this organization with a suitable reason, with justification.
3. Suggest the placement of the following devices with justification:
4. Repeater (b) Hub / Switch
5. The organization is planning to link all the wings at Mizoram branch with a high speed wired network. Suggest a suitable way to connect it; the company is ready to compromise on the cost of connectivity. Justify your answer.

 (v) Which of the following will you suggest to establish the online face to face communication between the people in the ADMIN office of Mumbai campus and Delhi head office?a) Cable TV b) Email c) Video conferencing d) Text chat | 5 |
| 33 | Write Python code to plot a bar chart for a charity fete event organized by a school as shown below: Also give suitable python statement to save this chart.ORWrite a python program to plot a line chart based on the No. of visitors to a Water theme park by visitors in five days. Day=[1,2,3,4,5]NoVisitors=[250,175,330,275,310] | 5 |
|  | **SECTION E** |  |
| 34 | Mr. James, a database administrator has designed a database for a leading Computer Software Solutions WEBDOT COMPUTER TRAINING INSTITUTE in Noida.

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| --- | --- | --- | --- | --- | --- |
| SID | SNAME | GENDER | PINCODE | CITY | FEE |
| 1 | Sharma | F | 185155 | Bhawni | 25000 |
| 2 | Singh | M | 110021 | New Delhi | 22000 |
| 3 | Alvis | M | 182141 | Udhmwara | 20000 |
| 4 | Yadav | F | 193222 | Kupwara | 18000 |
| 5 | Negi | F | 380025 | Ahmed Nagar | 7000 |
| 6 | Pandey | F | 110021 | New Delhi | 11000 |
| 7 | Sharma | M | 185155 | Bhawani | 18000 |

Help him by writing answers of the following questions based on the given table: TABLE: STUDMASTERi. Write a query to display student names in upper case.ii. Write a query to display the average fees of all the students.iii. Write a query to count total number of students studies from city “DELHI” or “AHMED NAGAR”.OR (Option for part iii only) Write a query to display the Maximum Fees and Minimum fees paid by the students Gender-wise.. | 1+1+2 |
| 35 | Ms. Ria, a data analyst has designed the DataFrame QuizDF that contains data about Quiz competition held at her university campus with ‘Q1’, ‘Q2’, ‘Q3’, ‘Q4’, ‘Q5’, ‘Q6’ as indexes shown below. Answer the following questions:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| TeamID | TeamName | City | Score1 | Score2 | Total |
| Q1 | Mars | Delhi | 75 | 20 | 95 |
| Q2 | Venus | Hyderabad | 90 | 30 | 120 |
| Q3 | Mercury | Pune | 50 | 15 | 65 |
| Q4 | Jupiter | Mysore | 80 | 35 | 115 |
| Q5 | Neptune | Trichy | 85 | 40 | 125 |
| Q6 | Uranus | Kolkata | 60 | 25 | 85 |

A. Predict the output of the following python statement:i. QuizDF.sizeii. QuizDF[1:5]B. Write Python statement to display the data of Score column of indexes Q2 to Q5.OR (Option for part iii only) Write Python statement to compute and display the Total Score of data of Score1 column and Score2 column of the above given DataFrame. | 1+1+2 |