CKS CODE: **282**

CENTRAL KERALA SAHODAYA
MODEL EXAMINATION 2022-2023

CLASS XII

Subject: **INFORMATICS PRACTICES (065)**

Time Allotted: 3 HRS Max Marks: 70

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.

Q.No	SECTION A	Marks
1.	Identify the type of network in a school campus. i. LAN ii. PAN iii. MAN iv. None of the above	1
2.	David has created the Series College but forget to give the index values [‘S1’,’S2’,’S3’,’S4’]. Which one of the following will set the index values to Series School. i. index=[‘S1’,’S2’,’S3’,’S4’] ii. index=(‘S1’,’S2’,’S3’,’S4’) iii. College.index=[‘S1’,’S2’,’S3’,’S4’] iv. College.index=(‘S1’,’S2’,’S3’,’S4’)	1
3.	Given below is a DataFrame 'DayName'. Day Name 1 Monday 2 Tuesday 3 Wednesday 4 Thursday Which one of the following will result in 2? i. DayName.size ii. DayName.ndim iii. DayName.column iv. DayName.shape	1
4.	Raju was checking a python project. While accessing the column from the data frame, he can specify the column name. In case column does not exist, which type of error it will raise:	1

	i. Index Error ii. Column Error iii. Key Error iv. Runtime Error	
5.	Which amongst the following is an example of a browser? i. CHROME ii. AVG iii. AVAST iv. NORTON	1
6.	Choose the correct statement from the options given below to read from a CSV file in a dataframe DF1 is : i. <DF1>.read_csv(<file>) ii. <file>.read_csv(<DF1>) iii. <DF1>=pandas.read(<file>) iv. <DF1>=pandas.read_csv(<file>)	1
7.	Which of the following module is used for plotting in Python? i. matplotlib ii. pipinstall iii. piplot iv. pyplot	1
8.	Which argument must be set with plotting functions for legend( ) to display the legends ? i. data ii. label iii. columns iv. sequence	1
9.	Which one of the following options are under aggregate functions? i. SUM(),ROUND(),AVG() ii. SUM(), SQRT(),ROUND() iii. COUNT(),AVG(), INSTR() iv. AVG(),MIN(), SUM()	1
10.	Which of the following function is used to save figure created after plotting data? i. figsave( ) ii. savefig( ) iii. save( ) iv. savefigure( )	1
11.	Which of the URL is a platform for supporting the open data initiative of the Government of India? i.www.opendata.gov.in ii. www.govdata.in iii. www.data.gov.in iv. www.open.gov.in	1

12.	What is the maximum value that can be stored in NUMERIC(3,1)? i. 99.9 ii. 9.99 iii. 999.99 iv. 99.999	1
13.	POW( ) is an example of - i. Math Function ii. Text Function iii. Date Function iv. Aggregate Function	1
14.	Which SQL statement do we use to find the total number of records present in a table? i. distinct( ) ii. max( ) iii. sum( ) iv. count(*)	1
15.	What will be returned by the given query? SELECT INSTR('MERRY CHRISTMAS 2022', 'YEAR'); i. 0 ii. 1 iii. NULL iv. Error	1
16.	Thomas is confused in using date functions in SQL. To get the current date, _____ function is used. i. DATE( ) ii. CURDATE( ) iii. CURRENTDATE( ) iv. CDATE( )	1
	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): The rename function of Data Frame does not rename the columns of the original data frame, but instead returns a dataframe with updated column names. Reason (R): Default value of inplace parameter in rename function is True.	1
18.	Assertion (A): - To make a Histogram with Matplotlib, we can use plt.hist( ) function. Reasoning (R):- The bin parameter is not compulsory to create histogram.	1

<table>
<tr><th colspan="3">SECTION B</th></tr>
<tr><td>19.</td><td>Compare Authentication and Authorization.

OR
What is the difference between static and dynamic web pages?</td><td>2</td></tr>
<tr><td>20.</td><td>What will be the output produced by the following programming statements 1 & 2?

import pandas as pd
S1=pd.Series(data=[56,45,60,38])
print(S1>50) #..... Statement1
print(S1[S1>50]) #..... Statement2</td><td>2</td></tr>
<tr><td>21.</td><td>SELECT COUNT(*) FROM EMPLOYEE; # Statement 1

SELECTCOUNT(DESIGNATION) FROM EMPLOYEE; # Statement 2
The output of Statement 1 is 12 and Statement 2 is 10 respectively. Justify your answer. What will be the total number of rows present in the table EMPLOYEE.</td><td>2</td></tr>
<tr><td>22.</td><td>Create a DataFrame using a dictionary that stores Age, Location and Name of candidates applied for an International Sports Event. Screen shot as follows:
<table><tr><th></th><th>Age</th><th>Location</th><th>Name</th></tr><tr><td>0</td><td>24</td><td>New York</td><td>John</td></tr><tr><td>1</td><td>13</td><td>Paris</td><td>Anna</td></tr><tr><td>2</td><td>53</td><td>Berlin</td><td>Peter</td></tr><tr><td>3</td><td>33</td><td>London</td><td>Linda</td></tr></table>Note: Pandas library has been imported as pd.</td><td>2</td></tr>
<tr><td>23.</td><td>Explain Digital Footprint.
OR
List any four benefits of e-waste management.</td><td>2</td></tr>
<tr><td>24.</td><td>Given below are two series.

<table><tr><th>S1</th><th>S2</th></tr><tr><td>0 56</td><td>0 45</td></tr><tr><td>1 45</td><td>1 34</td></tr><tr><td>2 60</td><td>2 66</td></tr><tr><td>3 38</td><td>3 40</td></tr></table>What will be the output of print(S1-S2)?
OR
Compare Pandas Series and DataFrame.</td><td>2</td></tr>
<tr><td>25.</td><td>List any two differences between single row and multi row functions.</td><td>2</td></tr>
</table>

SECTION C

26. (3)

Sl_No	Name	Age	Department	DateOfJoin	Salary	Sex
1	Sathyan	35	Computer	1999-02-01	15000.00	M
2	Ajay	30	Maths	2002-04-18	25000.00	M
3	Surya	30	Biology	2007-06-08	12000.00	F
4	Chithra	28	English	2010-07-09	18000.00	F
5	Babu	33	Physics	2009-08-03	19000.00	M
6	Seema	44	Chemistry	2000-07-07	27000.00	F
7	Raju	34	Chemistry	2006-09-10	23000.00	M
8	Renju	31	Physics	2006-05-05	12000.00	F
9	Mathew	51	English	1990-01-01	35000.00	M

Write outputs for SQL queries (i) to (iii) which are based on the given table TEACHER:

i. SELECT LENGTH(NAME) FROM TEACHER WHERE AGE>=35;
ii. SELECT NAME FROM TEACHER WHERE MONTH(DateOfJoin)=07;
iii. SELECT MOD (AGE, DAY(DateOfJoin)) FROM TEACHER WHERE DEPARTMENT='ENGLISH';

27. What do you understand by plagiarism? Why is it a punishable offence? Mention any two ways to avoid plagiarism. (3)

28. Consider the given DataFrame 'College': (3)

	Name	Fee
0	ABC	1500
1	XYZ	1800
2	PQR	2000
3	DEF	1200

Write suitable Python statements for the following:

i. Add a column called Tax with the following data:
[35,50,60,25].
ii. Add a new college named 'LMN' having Fee 1500.
iii. Remove the column Tax.

29. Preeti and Hima are friends. Preeti shared some of her photos with Hima through social media. After some days, they had some fight. So, Preeti deleted those photos from social media so that her friend cannot access those photos. Late in the evening, to her surprise, she saw that one of the images she had already deleted from social networking was available with their common friend Sita. Preeti enquired about this to Sita and found that Hima forwarded the image to her. (3)

Help Preeti to get answers for the following questions. Give justification for your answers that Preeti can understand it clearly.

a. How could Hima access an image which she had already deleted?
b. Can anybody else also can access these deleted images?
c. Had these images not been deleted from her digital footprint?

<table>
<tr><td>30.</td><td>Based on table DOCTOR given here, write suitable SQL queries for the following:
<table>
<tr><th>ID</th><th>NAME</th><th>DEPT</th><th>SEX</th><th>EXPERIENCE</th></tr>
<tr><td>101</td><td>John</td><td>ENT</td><td>M</td><td>12</td></tr>
<tr><td>104</td><td>Smith</td><td>ORTHPEDIC</td><td>M</td><td>5</td></tr>
<tr><td>105</td><td>Johnson</td><td>ORTHPEDIC</td><td>M</td><td>10</td></tr>
<tr><td>107</td><td>George</td><td>CARDIOLOGY</td><td>M</td><td>10</td></tr>
<tr><td>109</td><td>K George</td><td>MEDICINE</td><td>F</td><td>9</td></tr>
<tr><td>111</td><td>Bill</td><td>MEDICINE</td><td>F</td><td>12</td></tr>
<tr><td>114</td><td>Lara</td><td>SKIN</td><td>F</td><td>3</td></tr>
<tr><td>117</td><td>Lucy</td><td>ENT</td><td>F</td><td>3</td></tr>
<tr><td>130</td><td>Morphy</td><td>ORTHPEDIC</td><td>M</td><td>15</td></tr>
</table>
i. Display department-wise highest experience.
ii. Display department-wise lowest experience.
iii. Display total number of male and female doctors.</td><td>3</td></tr>
<tr><td colspan="3">SECTION D</td></tr>
<tr><td>31.</td><td>Write suitable SQL query and output (I to iv) for the following:

i. Display 10 characters extracted from 6 th left character onwards from the string ‘TAMASOMA JYOTHIRGAMAYA’.

ii. Display the position of occurrence of string ‘OR’ in the string ‘CORPORATE FLOOR’.

iii. Round off the value 87.7891 to two decimal place.

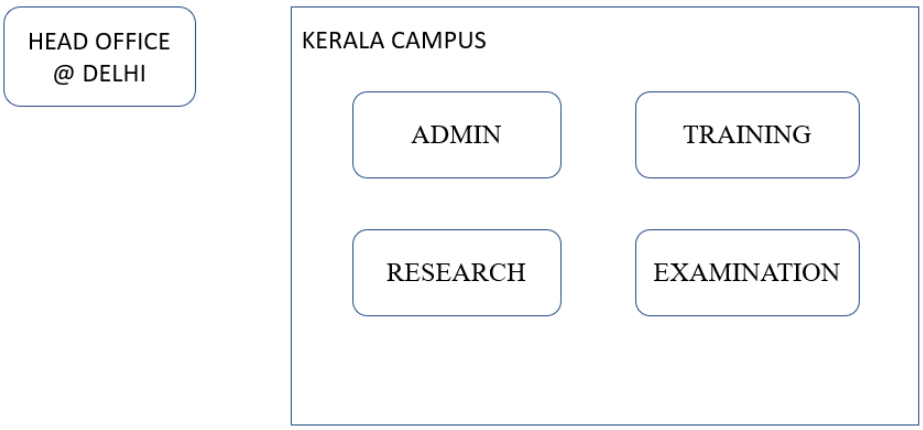
iv. Display the remainder of 80 divided by 7.

v. Remove all the expected leading and trailing spaces from a column NAME of the table ‘STAFF’. (Only query)

OR

Explain the following SQL functions using suitable examples.

i. LCASE()
ii. RTRIM()
iii. MID()
iv. YEAR()
v. SQRT()</td><td>5</td></tr>
<tr><td>32.</td><td>AB Soft is an international training organization. It is planning to set up its India campus at Kerala with its head office in Delhi. The Kerala office campus has four main buildings-ADMIN, TRAINING, RESEARCH and EXAMINATION.</td><td>5</td></tr>
</table>



You as a network expert have to suggest the best network related solutions for their problems raised in (i) to (v), keeping in mind the distances between the buildings and other given parameters.

Shortest distances between various buildings:

ADMIN TO TRAINING	55 m
ADMIN TO EXAMINATION	70 m
ADMIN TO RESEARCH	50 m
TRAINING TO EXAMINATION	80 m
TRAINING TO RESEARCH	50 m
EXAMINATION TO RESEARCH	45 m
DELHI Head Office to KERALA campus	3150 km

Number of computers installed at various buildings are as follows:

ADMIN	90
TRAINING	60
EXAMINATION	30
RESEARCH	15
DELHI HEAD OFFICE	20

(i) Suggest the most appropriate location of the server inside the KERALA campus (out of the four buildings) to get the best connectivity for maximum number of computers. Justify your answer.

(ii) Suggest and draw cable layout to efficiently connect various buildings within the KERALA campus for a wired connectivity.

(iii) Which networking device will you suggest to be procured by the company to interconnect all the computers of various buildings of KERALA campus?

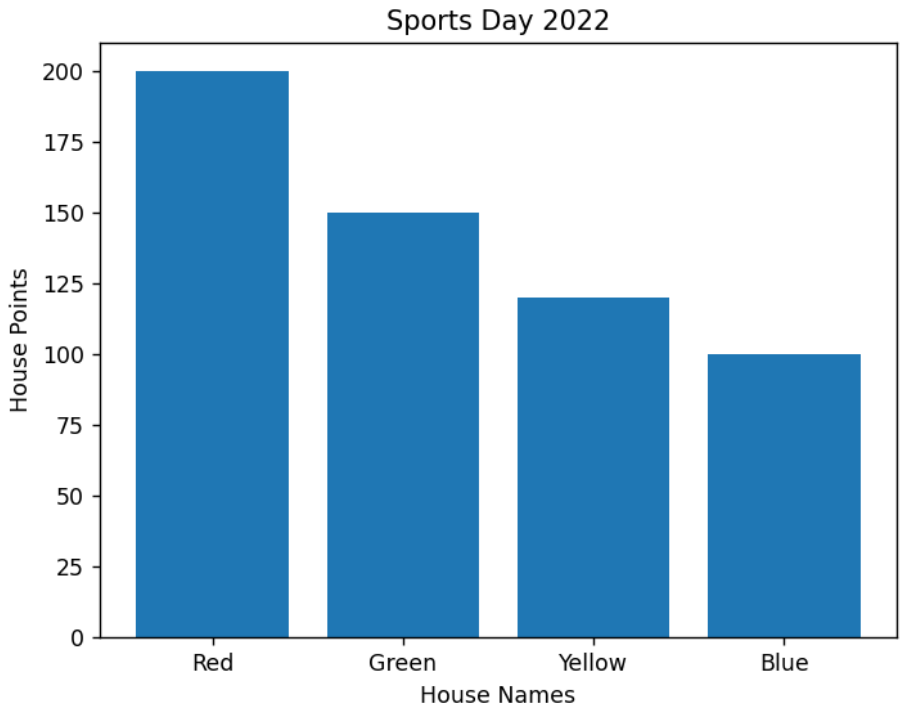
(iv) Training Company is planning to get its website designed which will allow students to see their results after registering themselves on its server. Out of the static or dynamic, which type of website will you suggest?

(v) Which of the following will you suggest to establish the online face to face communication between the people in the ADMIN office of KERALA campus and Delhi head office?

a) Cable TV

b) Email
c) Video Conferencing
d) Text chat

33. Write Python code to plot a bar chart for House vs Points as shown below. Also give suitable python statement to save this chart. 5



OR

Write a python program to plot a line chart based on the given data to depict the changing daily student attendance in grade 12 for five days.
Days=[1,2,3,4,5]
Attendance=[35,40,38,36,34]

SECTION E

34. Manavi, a database administrator has designed a database for a shop. Help her by writing answers of the following questions based on the given table: 1+1+2

TABLE: **SHOP**

CODE	TYPE	SIZE	COLOUR	PRICE	PDATE
101	JEANS	XL	BLUE	990	2022-01-21
102	T SHIRT	M	RED	599	2021-12-12
103	TROUSER	M	GREY	399	2021-11-10
104	SAREE	FREE	GREEN	1499	2019-11-12
105	KURTI	L	WHITE	499	2021-12-07

i. Write a query to display cloth types in lower case.
ii. Write a query to display the lowest price of the cloths.
iii. Write a query to count total number of cloths purchased of medium size.

OR (Option for part iii only)

Write a query to count year wise total number of cloths purchased.

35.	Mr. Tarun, a data analyst has designed the DataFrame **DF1** that contains data about Cyber Security Olympiad with 'CS1', 'CS2', 'CS3', 'CS4', 'CS5' as indexes shown below. Answer the following questions:	1+1+2

	SCHOOL	TOT_STUD	DIST	FIRST
CS1	AVS	40	32	8
CS2	GYI	30	18	12
CS3	HKR	20	18	2
CS4	DNY	18	10	8
CS5	NJU	28	20	8

A. Predict the output of the following python statement:
i. DF1.shape
ii. DF1[2:4]

B. Write Python statement to display the data of DIST column of indexes CS2 to CS4.

OR (Option for part iii only)

Write Python statement to compute and display the difference of data of TOT_STUD column and FIRST column of the above given DataFrame.