BUDHA DAL PUBLIC SCHOOL, PATIALA
TERM-I EXAMINATION (SESSION 2024-25)   SET:-B

CLASS: - XII, SUBJECT: - INFORMATICS PRACTICES (CODE:- 065)

Time: 3 Hours   **Max. Marks: 70**
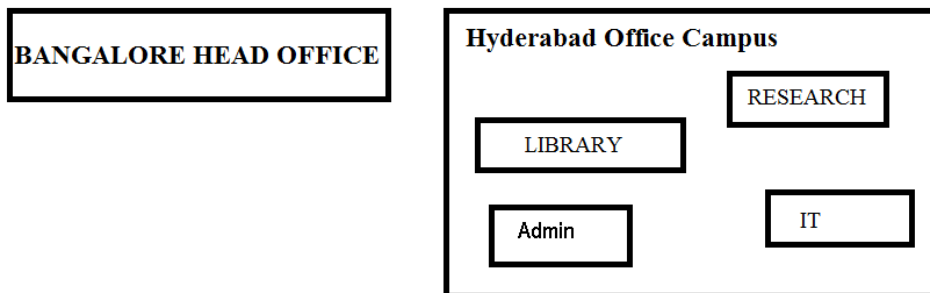
General Instructions:

1. **This question paper contains five sections, Section A to E.**

2. **All questions are compulsory.**

3. **Section A has 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 02 questions carrying 04 marks each.**

7. **Section E has 03 questions carrying 05 marks each.**

8. **All programming questions are to be answered using Python Language only.**

	SECTION-A	
	Fill in the Blanks:-	
1.	To create a series object, ____method is used.	1
2.	Barh( ) function is used to create _____ bar chart.	1
3.	Web page constitutes the _____.	1
	State Whether the following statements are True or False:-	
4.	To access subset of a dataframe , we can us loc[] and iloc[] methods.	1
5.	Pyplot is a python library.	1
6.	A Switch is a device used to segment networks into sub-networks or subsets.	1
	Multiple Choice Questions(MCQs):-	
7.	Which of these is not a communication channel? (i) Satellite (ii) Microwave (iii) Radio Wave (iv) Wi-Fi	1
8.	Which amongst the following is not an example of browser? (i) Chrome (ii) Firefox (iii) Avast (iv) Edge	1
9.	What is the use of Bridge in the network? (i) To connect LANs (ii) Only Destination address (iii) To Control network Speed (iv) Source or Destination address	1
10.	Which of the following is the smallest network? (i) WAN (ii) MAN (iii) LAN (iv) Wi-Fi	1
11.	Matplotlib allows you to crate: (i) Table (ii) Charts (iii) Maps (iv) infographics	1
12.	Which of the following plots makes it easy to visualize a trend in data over intervals of time? (i) Box plot (ii) Histogram (iii) Line Chart (iv) Bar Chart	1
13.	Which attribute of dataframe is used to perform the transpose operation on a dataframe?\ (i) T (ii) Ndim (iii) Empty (iv) Shape	1
14.	In a dataframe, axis=0 is for (i) Columns (ii) Rows (iii) Rows and Columns both (iv) None of these	1
15.	MAN stands for_____ (i) Metropolitan Area Network (iii) Main Area Network (iii) Metropolitan Access Network (iv) Metro Access Network	1
16.	The most popular data visualization library in python is : (i) pip (ii) matinfolib (iii) matplotlib (iv) matpiplib	1

	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as
	  a) **Both A and R are true and R is the correct explanation for A**
	  b) **Both A and R are true and R is not the correct explanation for A**
	  c) **A is True but R is False.**
	  d) **A is False but R is True.**
		1

17.	**Assertion (A):** A Router is more reliable and intelligent device than a Hub or Switch. **Reasoning(R):** Router has advanced capabilities as it can analyze data and device how it is packaged and sent to other networks.	
18.	**Assertion (A):** Import matplotlib.pyplot as plt is used to import pyplot module**.** **Reasoning(R):** Matplotlib is a Python library and pyplot is a module that contains function to create various plots.	1
	SECTION-B	
19.	What is Dataframe.	2
20.	Write output of the following code Import pandas as pd my_Series=pd.Series({'Patiala':20. 'Chandhigarh':35, 'Ludhiana':40}) print(my_Series[my_Series[my_Series>20])	2
21.	What will be the output of the following code: Import pandas as pd s1=pd.Series([1,2,3,6,'Aman',88.5]) print(s1.tail(3))	2
22.	What are the various types of plots offered by Matplotlib?	2
23.	Write one advantage and disadvantage of Networking.	2
24.	Define ARPANET.	2
25.	What is VoIPs?	2
	SECTION-C	
26.	Write the output of the following code: Import pandas as pd data=[['Aditya',12], ['Vijay',15], ['Akash',18]] df=pd.DataFrame(data,columns=['Name','Age'],dtype=float) print(df)	3
27.	What is a histogram. How is it useful?	3
28.	Write any one advantage and one disadvantage of Bus Topology.	3
29.	Why is the following code not producing any result? Why is it giving error.(Note that all required libraries have been imported and are available). a=range(10, 50, 12) b=range(90, 200 , 20) matplotlib.pyplot.plot(a,b)	3
30.	Explain the difference between the loc and iloc functions in Pandas.	3
	SECTION-D	
31	Define the following data communication deceives. (a) Router (B) Gateway	4
32.	Differentiate between IP Address and MAC address.	4
	SECTION-E	
33.	What is meant by network topology? Explain ring and mesh topology with diagrams.	5
34.	Write a program to plot a bar chart to depict the changing daily temperatures for four days. Give appropriate axes labels. Days = ['Monday', 'Tuesday', 'Wednesday', 'Thursday'] Temperature = [30, 32, 29, 31]	5

35.	**Global Learning Institute** is an international educational organization. It is planning to set up its India campus at Hyderabad with its head office in Bangalore. The Hyderabad Office campus has four main buildings: ADMIN, RESEARCH, LIBRARY, and IT. As a network expert, you 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.	5

BANGALORE HEAD OFFICE

Hyderabad Office Campus

RESEARCH

LIBRARY

Admin

IT

Shortest distances between various buildings:

ADMIN TO RESEARCH	60 m
ADMIN TO LIBRARY	100 m
ADMIN TO IT	70 m
RESEARCH TO LIBRARY	40 m
RESEARCH TO IT	50 m
LIBRARY TO IT	90 m
BANGALORE HEAD OFFICE TO HYDERABAD CAMPUS	600 KM

Number of computers installed at various buildings:

ADMIN	100
RESEARCH	80
LIBRARY	50
IT	30
BANGALORE HEAD OFFICE	25

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

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

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

(d) The company is planning to get its website designed, which will allow students to access digital resources after registering themselves on its server. Out of the static or dynamic type of website, which type will you suggest?

(e) Which of the following will you suggest for online face-to-face communication between the people in the ADMIN office of Hyderabad campus and Bangalore Head Office?

(i) Cable TV   (ii) Email   (iii) Video Conferencing   (iv) Text chat