# BUDHA DAL PUBLIC SCHOOL, PATIALA
## TERM-I EXAMINATION (SEPT. 2025)     SET:- B
### CLASS: - XII, SUBJECT: - INFORMATICS PRACTICES (CODE:- 065)
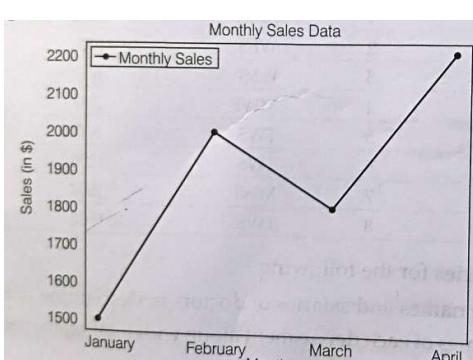
**Time: 3 Hours**                                                                     **Max. Marks: 70**

**General Instructions:**
1. This question paper contains 37 questions.
2. All questions are compulsory.
3. The paper is divided into 5 Sections- A, B, C, D and E.
4. Section A consists of 21 questions (1 to 21). Each question carries 1 Mark.
5. Section B consists of 7 questions (22 to 28). Each question carries 2 Marks.
6. Section C consists of 4 questions (29 to 32). Each question carries 3 Marks.
7. Section D consists of 2 questions (33 to 34). Each question carries 4 Marks.
8. Section E consists of 3 questions (35 to 37). Each question carries 5 Marks.

| | SECTION-A | |
|---|---|---|
| 1. | The first network is <br> a) Internet     b) NSFnet     c) NET     d) ARPANET | 1 |
| 2. | Which of the following devices causes congestion if conneced in a Computer Network? <br> a) Gateway     b) Switch     c) Hub     d) Modem | 1 |
| 3. | In given code dataframe 'Df1' has _____ rows and _____ columns. <br> import pandas as pddict= [{'a':10, 'b':20}, {'a':5, 'b':10, 'c':20},{'a':7, 'd':10, 'e':20}] <br> Df1 = pd.DataFrame(dict) <br> a) None of these     b) 3, 4     c) 3, 5     d) 3, 3 | 1 |
| 4. | Which of the following is an advantage of open source software? <br> a) you have to pay     b) can sometimes with two generic for specialist purposes <br> c) you need to be an expert to edit code     d) You can edit the source code to customise it | 1 |
| 5. | In Star topology if central hub fails, it effects <br> a) None of these    b) Entire system    c) Particular Node    d) No effects | 1 |
| 6. | In order to work with Pandas in Python, you need to _____library in your program. <br> To create a series object, _____method is used. | 1 |
| 7. | To access subset of a dataframe , we can us loc[] and iloc[] methods. ( True/False) | 1 |
| 8. | Which network device regenerates and retransmits a week signal? <br> (i) Router     (ii) Hub     (iii) Repeater     (iv) RJ-45 | 1 |
| 9. | What is the use of Bridge in the network? <br> (i) To connect LANs     (ii) Only Destination address <br> (iii) To Control network Speed     (iv) Source or Destination address | 1 |
| 10. | In a dataframe, axis=0 is for <br> Columns     (ii) Rows     (iii) Rows and Columns both     (iv) None of these | 1 |
| 11. | Which method would you use to sort a DataFrame by the values of a specific column in ascending order? | 1 |

| | | |
|---|---|---|
| | (a) sort()      (b) order()      (c) sort_values()      (d) sort_index() | |
| 12. | Which of the following reads data from csv files?<br><br>    (a) get_csv()    (b) read_csv()    (c) csv_read()    (d) read() | 1 |
| 13. | Given a Pandas Series called Sequences, the command which will display the first 4 rows is<br><br>    (a) print (Sequences.head(4))      (b) print (Sequences. Head (4))<br><br>    (c) print (Sequences.heads (4))      (d) print (Sequences. Heads (4)) | 1 |
| 14. | Which attribute of dataframe is used to perform the transpose operation on a dataframe?\<br><br>   (a)  T      (b) Ndim      (c) Empty      (d) Shape | 1 |
| 15. | Which of the following is the smallest network?<br>    (a)WAN    (b) MAN    (c) LAN    (d) Wi-Fi | 1 |
| 16. | Which of the following plots makes it easy to visualize a trend in data over intervals of time?<br>    (a)  Box plot    (b) Histogram    (c) Line Chart    (d) Bar Chart | 1 |
| 17. | Which argument must be set with plotting functions for legend() to display the legends?<br><br>    (a) data    (b) label    (c) name    (d) sequence | |
| 18. | Which of these is not a communication channel?<br>    (i)    Satellite    (ii) Microwave    (iii) Radio Wave    (iv) Wi-Fi | |
| 19. | Which is a Python package used for 2D graphics?<br>a) matplotlib.pyplot    b) matplotlib.pip    c) matplotlib.numpy    d) matplotlib.plt | |
| | **Q20 and 21 are ASSERTION AND REASONING based questions. Mark the correct choice as**<br>   a)  **Both A and R are true and R is the correct explanation for A**<br>   b)  **Both A and R are true and R is not the correct explanation for A**<br>   c)  **A is True but R is False.**<br>   d)  **A is False but R is True.** | 1 |
| 20. | **Assertion (A)** DataFrame has both a row and column index.<br><br>**Reason (R)** A DataFrame is a two-dimensional labelled data structure like a table of MySQL. | |
| 21. | **Assertion (A):** A Router is more reliable and intelligent device than a Hub or Switch.<br>**Reasoning(R):** Router has advanced capabilities as it can analyze data and device how it is packaged and sent to other networks. | 1 |
| | **SECTION-B**      **7X2=14** | |
| 22. | Name any two most popularly used Internet browsers.<br>Write the relationship between a website and a web server. | 2 |
| 23. | import pandas as pd<br>name=['VIJAY','AKASH','AMAR']<br>p=pd.Series(name,index=[1,2,3])<br>print(p) p1=p.reindex([5,6,7])<br>print (p1) | 2 |
| 24. | Write any one advantage of using E-mail. | 2 |

| | | |
|---|---|---|
| 25. | What are the possible damages caused by viruses? | 2 |
| 26. | Give an example of each static web page and dynamic web page. | 2 |
| 27. | What is Dataframe. | 2 |
| 28. | What will be the output of the following code:<br>Import pandas as pd<br>s1=pd.Series([1,2,3,6,'Aman',88.5])<br>print(s1.tail(3)) | 2 |

<div align="center"><b>SECTION-C  4X3=12</b></div>

| | | |
|---|---|---|
| 29. | Write a Python code to create a DataFrame with appropriate headings from the list given below:<br>['J201', 'AMAR', 80], ['J202', 'AKASH', 75], ['J204', 'AMIT', 85], ['J205', 'AJAY', 95] | 3 |
| 30. | What is a histogram. How is it useful? | 3 |
| 31. | Write any one advantage and one disadvantage of Bus Topology. | 3 |
| 32. | Explain the difference between the `loc` and `iloc` functions in Pandas. | 3 |

<div align="center"><b>SECTION-D 2X4=8</b></div>

| | | |
|---|---|---|
| 33 | During a practical exam, a student, Ravi, has to fill in the blanks in a Python program that generates a line chart. This line chart represents the monthly sales of a store over four months. | 4 |

| Month | Sales (in $) |
|---|---|
| January | 1500 |
| February | 2000 |
| March | 1800 |
| April | 2200 |

Help Ravi to complete the code.



```
import _____as plt                                          #Statement-1
months = ['January', 'February'. 'March', 'April']
sales [1500, 2000, 1800, 2200]
plt.plot(months,_____ marker='o', label='Monthly Sales')     #Statement-2
plt.xlabel('Month')
plt._____ ('Sales (in $)')                                    #Statement-3
```

```
plt.legend()
plt.title('_____ ')                                          #Statement-4
plt.show( )
```

   I.    Write the suitable code for the import statement in the blank space in the line marked as Statement-1.

  II.    Refer to the graph shown above and fill in the blank in Statement-2 with suitable. Python code.

 III.    Fill in the blank in Statement-3 with the name of the function to set the label on the y-axis.

 IV.    Refer to the graph shown above and fill the blank in Statement-4 with a suitable chart title.

| | | |
|---|---|---|
| 34. | Define the following data communication deceives.<br>(a) Router                        (B) Gateway | 4 |

**SECTION-E 3X5=15**

| | | |
|---|---|---|
| 33. | What is meant by network topology? Explain ring and mesh topology with diagrams. | 5 |
| 34. | Convent School has 4 buildings in its campus. Distance between the buildings and the number of computers in each is given below | 5 |



| Building | Number of Computers |
|---|---|
| A | 150 |
| B | 10 |
| C | 25 |
| D | 30 |

| Building | Distance |
|---|---|
| A-B | 10 m |
| A-C | 1250 m |
| A-D | 25 m |
| B-C | 30 M |
| B-D | 2000M |
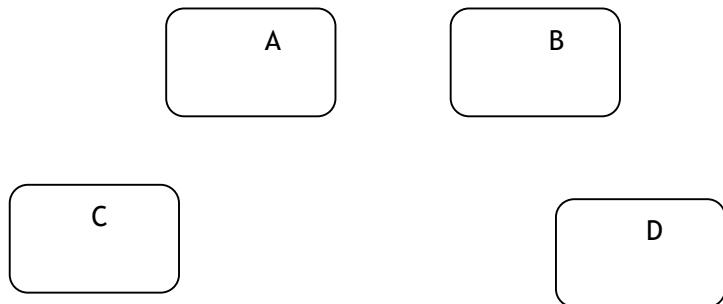
(i)      Which building is best suitable for placement of server?

(ii)     If building A to D is to be connected, which device will be required for strong signals?

(iii)    Which building would need a switch/hub?

| | | |
|---|---|---|
| | (iv)    Which topology would you suggest for connecting computers in each building? | |
| | (v)    Draw cable layout to efficiently connect various buildings within the school campus for a wired connectivity. | |
| 35. | Write a program to plot a bar chart to depict the changing weekly onion prices for four weeks. Give appropriate axes labels.<br>Week=[1,2,3,4]<br>Price=[50,100,150,90] | 5 |