ITBP Public School, Dwarka
Summer Vacation Holiday Homework
Session:-2021-22
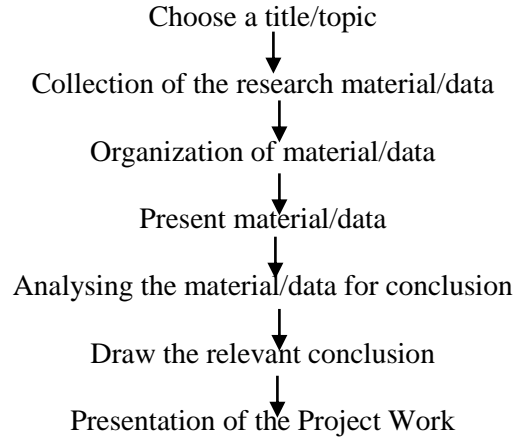### Class XII

CLASS	SUBJECT	TOPIC
12B	ACCOUNTANCY	1. Solve all the Scanner Question of Ch-1 to Ch-2.
12B	BUSINESS STUDIES	Prepare a Project on the topic of :- 1. How COVID -19 triggered the digital and e-commerce turning point. 2. COVID-19: its implication on Trade and Commerce. 3. COVID-19 and CSR: time to step up and build an equitable society. 4. Leadership during COVID-19: Building trust in times of uncertainty. 5. COVID-19: will stock market crash again? What is the correct investment strategy in such uncertain times? Presentation and Submission of Project Report At the end of the stipulated term, each student will prepare and submit his/her project report. Following essentials are required to be fulfilled for its preparation and submission. 1. The total length of the project will be of 25 to 30 pages. 2. The project should be handwritten/ power-point presentation. 3. The project should be presented in a neat folder. 4. The project report should be developed in the following sequence- ❖ Cover page should include the title of the Project, student information, school and year. ❖ List of contents. ❖ Acknowledgements and preface (acknowledging the institution, the places visited and the persons who have helped). ❖ Introduction. ❖ Topic with suitable heading. ❖ Planning and activities done during the project, if any. ❖ Observations and findings of the visit. ❖ Conclusions (summarized suggestions or findings, future scope of study). ❖ Photographs (if any). ❖ Appendix
	PHYSICAL EDUCATION	<u>Practical file</u> Practical-1: Fitness tests administration for all items. Practical-2: Procedure for Asanas, Benefits & Contraindication for any two Asanas for each lifestyle disease. Practical-3: Procedure for administering Senior Citizen Fitness Test for 5 elderly family Members. Practical-4: Any one game of your choice out of the list above.

		Labelled diagram of field & equipment (Rules, Terminologies & Skills).Basketball, Football, Kabaddi, Kho-Kho, Volleyball, Handball, Hockey, Cricket, Bocce & Unified Basketball [CWSN (Children With Special Needs - Divyang)]
		Practice questions-
		Q 1. Our school is going to organize football school national tournament. How will you manage the entire things for the successful conduction of the tournament?
		Q2. Discuss about the various types of tournaments with their advantages and disadvantages in detail.
		Q3. Draw the fixture of 20 teams on knock-out basis.
		Q4. Draw the fixture of 19 teams on knock-out with the special seeding of 4 teams.
		Q5. Draw the fixture of 18 teams on knock-cum-league basis.
		Q6. Draw the fixture of 7 teams on league basis.
		Q7. Draw the fixture of 10 teams on league basis.
		Q8. Draw the fixture of 6 teams on double league basis.
		Q9. What do you mean by intramural and extramural? Mention the significance of intramural and extramural.
		Q10. What do you mean by specific sports programmes? Explain about health runs and run for unity in detail.
		Q11. What do mean by planning? Elucidate the objectives of planning in sports in detail.
		Q12. Discuss about knock-out cum league and league cum knock-out methods.
		Q13. What do you understand by term SEEDING? Explain the methods of distributing seeding.
		Q14. Discuss about various types of consolation tournaments in detail.
		Q15. Discuss in detail about the challenging tournaments.
		Q16. What do you understand by consolation tournament? Draw the consolation fixture type-II for 15 teams.
	Economics	Every student has to compulcompulsorily undertake one project from following topics.
		The **objectives** of the project work are to enable learners to: (i) Probe deeper into theoretical concepts learnt in classes XII. (ii) Analyse and evaluate real world economic scenarios using theoretical constructs and arguments. (iii) Demonstrate the learning of economic theory. (iv) Follow up aspects of economics in which learners have interest. (v) Develop the communication skills to argue logically
		The **expectations** of the project work are that: (i) Learners will complete only ONE project in each academic session. (ii) Project should be of 3,500-4,000 words (excluding diagrams & graphs), preferably hand-written.

(iii) It will be an independent, self-directed piece of study

Scope of the project:
Learners may work upon the following lines as a suggested flow chart:

Choose a title/topic

↓

Collection of the research material/data

↓

Organization of material/data

↓

Present material/data

↓

Analysing the material/data for conclusion

↓

Draw the relevant conclusion

↓

Presentation of the Project Work

Expected Checklist:
(i) Introduction of topic/title.
(ii) Identifying the causes, consequences and/or remedies.
(iii) Various stakeholders and effect on each of them.
(iv) Advantages and disadvantages of situations or issues identified.
(v) Short-term and long-term implications of economic strategies suggested in the course of research.
(vi) Validity, reliability, appropriateness and relevance of data used for research work and for presentation in the project file.
(vii) Presentation and writing that is succinct and coherent in project file.
(viii) Citation of the materials referred to, in the file in footnotes, resources section, bibliography etc

Topics
Micro and Small Scale Industries
Contemporary Employment situation in India
Goods and Services Tax Act and its Impact on GDP
Human Development Index
Self-help group
Monetary policy committee and its functions
Government Budget & its Components
Exchange Rate determination – Methods and Techniques
Livestock – Backbone of Rural India
Sarwa Siksha Abhiyan – Cost Ratio Benefits
Minimum Support Prices
Waste Management in India – Need of the hour
Digital India- Step towards the future

		Vertical Farming – an alternate way
		Make in India – The way ahead
		Rise of Concrete Jungle- Trend Analysis
		Any other newspaper article and its evaluation on basis of economic principles
		Food Supply Channel in India
		Disinvestment policy of the government
		Health Expenditure (of any state)
		Inclusive Growth Strategy
		Trends in Credit availability in India
		Role of RBI in Control of Credit
		Trends in budgetary condition of India
		Currency War – reasons and repercussions
		Alternate fuel – types and importance
		Golden Quadrilateral- Cost ratio benefit
		Relation between Stock Price Index and Economic Health of Nation
		Minimum Wage Rate – approach and Application
		Rain Water Harvesting – a solution to water crises
		Silk Route- Revival of the past
		Bumper Production- Boon or Bane for the farmer
		Organic Farming – Back to the Nature

	ENGLISH	Once you learn to read, you will be forever free." – Frederick Douglass
		
		This summer break is the only time when you can brush up and hone your reading and writing skills in English.
		a) **Read following books:**
		   1. The Alchemist- Paulo Coelho
		   2. The international accent practice book. (Digital book provided in the whatsapp group)
		   3. The black book of vocabulary. (Digital book provided in the whatsapp group)
		
		b) Watch any **one** English film from the list given below:
		   1) Inception
		   2) A Beautiful Mind
		   3) Day after tomorrow
		c) Draw unique flow chart of "Figure of Speech with examples". (Atleast 12)
		d) Research the new additions from Indian Languages to the Oxford English Dictionary. Write ten such words, their source and meaning.
		e) Complete the notes from the lesson Deep water in the fair notebook provided through the whatsapp group. (VSA, SA, LA, CBQ)
		f) Solve the writing skills in your fair notebooks from the sample papers shared in the English group.

	MATHMATICS	**HOLIDAY HOMEWORK** **CLASS-XII**

Q.1 Show that A'A and AA' are both symmetric matrices for any matrix A.

Q.2 If A=$\begin{bmatrix} cosx & sinx \\ -sinx & cosx \end{bmatrix}$, then show that $A^2 = \begin{bmatrix} cos2x & sin2x \\ -sin2x & cos2x \end{bmatrix}$.

Q.3 Find the value of x for which the matrix product

$$\begin{bmatrix} 2 & 0 & 7 \\ 0 & 1 & 0 \\ 1 & -2 & 1 \end{bmatrix} \begin{bmatrix} -X & 14X & 7X \\ 0 & 1 & 0 \\ X & -4X & -2X \end{bmatrix} \text{ equal an identity matrix.}$$

Q.4 If A

$$= \begin{bmatrix} 1 & -1 & 0 \\ 2 & 5 & 3 \\ 0 & 2 & 1 \end{bmatrix}, find\ A^{-1}, using\ elementary\ row\ operations.$$

Q.5 Find a matrix A such that 2A-3B+5C=0 where B=

$$\begin{bmatrix} -2 & 0 & 2 \\ 4 & 6 & 3 \\ 7 & 0 & 0 \end{bmatrix}, C = \begin{bmatrix} 2 & 0 & -2 \\ 7 & 1 & 6 \\ 5 & 4 & 3 \end{bmatrix}$$

Q.6 If A= $\begin{bmatrix} 1 & -1 \\ 2 & -1 \end{bmatrix}$, B=$\begin{bmatrix} a & 1 \\ b & -3 \end{bmatrix}$ and (A+B)²=A²+B², find a and b.

Q.7 If A=$\begin{bmatrix} 1 & 2 \\ 1 & 2 \end{bmatrix}$, f(x)=x²-2x-3$I$, find f(A)

Q.8 Given A=$\begin{bmatrix} 2 & 2 & -4 \\ -4 & 2 & -4 \\ 2 & -1 & 5 \end{bmatrix}, B = \begin{bmatrix} 1 & -1 & 0 \\ 2 & 3 & 4 \\ 0 & 1 & 2 \end{bmatrix}$ find BA and use this

to solve the system of equations y+2z=7 , x-y=3 , 2x+3y+4z=17.

Q.9 If A=$\begin{bmatrix} 2 & x & -3 \\ 0 & 2 & 5 \\ 1 & 1 & 3 \end{bmatrix}, then\ A^{-1}\ exists\ if$?

Q.10 For what value of x the matrix A=$\begin{bmatrix} 1 & -2 & 3 \\ 1 & 2 & 1 \\ x & 2 & -3 \end{bmatrix}$ is singular?

Q.11 Determine the value of x for which the matrix

$$\begin{bmatrix} x+1 & -3 & 4 \\ -5 & x+2 & 2 \\ 4 & 1 & x-6 \end{bmatrix} \text{ is singular.}$$

Q.12 Let A=$\begin{bmatrix} 2 & 3 \\ -1 & 2 \end{bmatrix}, then\ show\ that\ A^2 - 4A + 7I = 0$ Using this
result calculate A³ and A⁵.

Q.13 If A=$\begin{vmatrix} 1 & 2 & 0 \\ -2 & -1 & -2 \\ 0 & -1 & 1 \end{vmatrix}, then\ find\ the\ value\ of\ A^{-1}.\ Using\ A^{-1},$
solve the system

Q.14 If A=diag(1,-1,2) and B =diag(2,3,-1), find A+B, 3A+4B.

Q.15 If $[2x \quad 3] \begin{bmatrix} 1 & 2 \\ -3 & 0 \end{bmatrix} \begin{bmatrix} x \\ 8 \end{bmatrix} = 0, find\ the\ value\ of\ x.$

Q.16 If $A = \begin{bmatrix} 0 & -x \\ x & 0 \end{bmatrix}$, $B = \begin{bmatrix} 0 & 1 \\ 0 & 1 \end{bmatrix}$ and $x^2 = -1$ then show that $(A + B)^2 = A^2 + B^2$.

Q.17 If $A = \begin{bmatrix} cosx & sinx \\ -sinx & cosx \end{bmatrix}$ and $A^{-1} = A'$ find the value of x.

Q.18 If A is square matrix such that $A^2 = A$. Show that $(I+A)^3 = 7A+I$

Q.19 Check the following functions for one-one and onto. $f : R \to R$ $f(x) = \frac{2x-3}{7}$

Q.20 Let f: $R - \{-\frac{4}{3}\} \to R - \{\frac{4}{3}\}$ be a function given by $f(x) = \frac{4x}{3x+4}$. Show that f is invertible with $f^{-1}(x) = \frac{4x}{4-3x}$

Q.21 Let f: $R - \{-\frac{4}{3}\} \to R - \{\frac{4}{3}\}$ be a function given by $f(x) = \frac{4x}{3x+4}$. Show that f is invertible with $f^{-1}(x) = \frac{4x}{4-3x}$

Q.22 Show that function f : A $\to$ B defined as $f(x) = \frac{3x+4}{5x-7}$ where A= $R - \{\frac{7}{5}\}$,   B= $R - \{\frac{3}{5}\}$ is invertible and hence find f^{-1}.

Q.23 Consider $f : R+ \to [-5, \infty)$ given by $f(x) = 9x^2 + 6x - 5$ show that f is

invertible with $f^{-1} = \frac{\sqrt{x+6}-1}{3}$.

Q.24 Consider $f : R+ \to [-5, \infty)$ given by $f(x) = 5x^2 + 6x - 9$ show that f is

invertible with $f^{-1} = \frac{\sqrt{54+5y}-3}{5}$

| | **Informatics Practices** | 1. Write a Pandas program to multiple and divide two Pandas Series. Sample Series:

[2, 4, 8, 10], [1, 3, 7, 9]

2. Write a Pandas program to convert a dictionary to a Pandas series. Sample dictionary: d1 = {'a': 100, 'b': 200, 'c':300}

3. Write a Pandas program to sort a given Series. 400, 300.12,100, 200.

4. Write a Pandas program to change the order of index of a given series.

Original Data Series:

A 1 B 2 C 3 dtype: int64 Data Series after changing the order of index: B 2 A 1 C 3 dtype: int64 |

5. Write a Pandas program to get the first 3 rows of a given DataFrame.

6. Write a Pandas program to count the number of rows and columns of a DataFrame.

7. Write a Pandas program to combining two series into a DataFrame.

8. Write a Pandas program to get the specified row value of a given DataFrame.

9. Convert Dictionary into DataFrame.

10. Convert List into Dataframe.

11. Write DataFrame to CSV file.

12. Is series is a one-dimensional array which is labeled and can hold any data type?

13. Are DataFrames container for Series?

14. Write the name of methods used with series with their purpose.

15. Get index and values of a series.

Case study based questions:

16. Consider the following DataFrame df and answer the following questions from (i)-
(v)

rollno	Name	UT1	UT2	UT3	UT4
1	Prerna Singh	24	24	20	22
2	Manish Arora	18	17	19	22
3	Tanish Goel	20	22	18	24
4	Falguni Jain	22	20	24	20
5	Kanika Bhatnagar	15	20	18	22
6	Ramandeep Kaur	20	15	22	24

		(i)Write down the command that will give the following output.
		Rollno 6

(i)Write down the command that will give the following output.

 Rollno   6
 Name   Tanish Goel
 UT1   24
 UT2   24

 UT3   24
 UT4   24
 dtype: Object

a. print(df.max)
b. print(df.max())
c. print(df.max(axis=1))
d. print(df.max, axis=1)

(ii)The teacher needs to know the marks scored by the student with roll nu

4. Help her to identify the correct set of statement/s from the given optior

a. df1=df[df['rollno']==4]

      print(df1)df1

b.   df1=df[rollno==4]

      print(df1)

c. df1=df[df.rollno=4]

      print(df1)

d. df1=df[df.rollno==4]

     print(df1)

(iii)Which of the following statement/s will give the exact number of value

each column of the dataframe?

i. print(df.count())

ii. print(df.count(0))

iii. print(df.count)

iv. print(df.count(axis='index'))

Choose the correct option:

a. both (i) and (ii)

b. only (ii)

c. (i), (ii) and (iii)

e. (i), (ii) and (iv)

(iv)Which of the following command will display the column labels of t

DataFrame?

a. print(df.columns())

b. print(df.column())

c. print(df.column)

d. print(df.columns)

(v)Ms. Sharma, the class teacher wants to add a new column, the scores

with the values, ' A', 'B', 'A', 'A', 'B', 'A'

choose the command to do so:

a. df.column=['A','B','A','A','B','A']

b. df ['Grade']=['A','B','A','A','B','A']

c. df.loc['Grade']= ['A','B','A','A','B','A']

d. Both (b) and (c) are correct

17.   Consider the foll owing DataFrame df and answ er any questions from (i

	rollno	Name	UT1	UT2	U'
0	1	Pratima Sinha	29	30	19
1	2	Manoj Gupta	20	18	18
2	3	Tathagata Patra	18	22	20
2	4	Firoz Khan	22	23	27
4	5	Kirti Rani	15	24	29
5	6	Raman Kumar	21	15	23

6   7   Bineet Banerjee   28   16   24

(i) Select the options from the command that will give the following ⟨

             Roll No   7
             Name   Tathagata Patra
             UT1   29
             UT2   30
             UT3   29
             UT4   33
             dtype: object
   (a) print(df.max)
   (b) print(df.max())
   (c) print(df.max(axis is=1))
   (d) print(df.max, axis=1)

(ii) The teacher needs to know the marks scored by the student with r⟨
      him/her to identify the correct set of statements from the given opt
      option may be correct):

      (a)   df1=df [roll no = =7]
                 print (df1)
      (b)   df1=df [df ['rollno'] = =7]
                    print (df1)
      (c)   df1=df [df.rollno = = 7]
                    print (df1)
      (d)   df1=df [rollno.df = =7]print
                    (df1)
(iii) Which of the following statement/s will give the exact number of
column of the data frame?
             (i)   print(df.count( ))
             (ii)   print(df.count(0))
             (iii)   print(df.count)
             (iv)   print(df.count(axis = 'index'))
  Choose the correct option:
     (a) both (i) and (ii)
     (b) only (ii)
     (c) (i), (ii) and (iii)
     (d) (i), (ii) and (iv)
(iv) Which of the following command will display the column labels
    of the DataFrame?
    (a) print(df.columns( ))

(b) print(df.column)

(c) print(df.columns)

(d) print(df.column( ))

(v) A student Neeraj wants to add a new column, the score of Grade with the values 'B1','B2', 'A2', 'B2', 'B1', 'A1' , 'A1' to the DataFrame. Help him choose the command to doso:

(a) df['Grade'] = ['B1', 'B2', 'A2', 'B2', 'B1', 'A1' , 'A1']

(b) df.column = ['B1', 'B2', 'A2', 'B2', 'B1', 'A1' , 'A1']

(c) df.loc['Grade'] = ['B1', 'B2', 'A2', 'B2', 'B1', 'A1' , 'A1']

(d) both b and c are correct.

18. Given a data frame df as shown below---

	Country	Cases	Deaths	Region
0	United States	1,133,229	65,851	North America
1	Spain	245,567	25,100	Europe
2	Italy	207,428	28,236	Europe
3	United Kingdom	177,454	27,510	Europe
4	France	167,346	24,594	Europe
5	Germany	164,077	6,736	Europe

a. Write command to compute rename the indexes as code of the countries USA, SPA, ITA, UK, FR, GER.

b. Add a column capital =['Washington', 'Madrid', 'Rome', 'Londan', 'Paris', 'Berlin']

c. Write command to compute median of the deaths Column.

d. Write command to print first three rows.

e. Write command to drop column Region

19. Consider the following Dataframe named happy_df

created using following command

happy_df=pd.read_csv("Dataset3.csv")

Country	Region	Happines sRank	Happines sScore	Family
Switzerland	Western Europe	1	7.587	1.34951

Iceland	Western Europe	2	7.561	1.40223
Denmark	Western Europe	3	7.527	1.36058
Norway	Western Europe	4	7.522	1.33095
Canada	North America	5	7.427	1.32261
Finland	Western Europe	6	7.406	1.31826
Netherlands	Western Europe	7	7.378	1.28017
Sweden	Western Europe	8	7.364	1.28907
New Zealand	Australia and New Zealand	9	7.286	1.31967
Australia	Australia and New Zealand	10	7.284	1.30923

(i)Complete the following command to display first five rows of the above Dataframe.

        print(happy_df.iloc[_____:_____]

   (i) Write the command to display number of rows and columns of the above Dataframe.

   (a) print(happy_df.row,happy_df.columns)
   (b) print(happy_df.shape())
   (c) print(happy_df.shape)

   (ii) Which command(s) of the following would display only Region column of the above
   Dataframe.

   (a) print(happy_df.Region)
   (b) print(happy_df.iloc[,'Region']
   (c) print(happy_df.iloc[: ,'Region']
   (d) print(happy_df.iloc[:,1])

   (iii) What will be the output of the following command?

        print(happy_df.loc[4:6,'Country'])

   (iv)Which of the following commands would display maximum value of every column?
   (a) print(happy_df.max)
   (b) print(happy_df.max())
   (c) print(happy_df.max(axis=1))
   (d) print(happy_df.max, axis=1)

20. Consider the following DataFrame Gr and answer any four
questions from (i)- (v)   Name   Grade
                0 Aamir Khan A1
                1 Nuzut   A2
                2 Ishrar   B1

```
                3 Shahid        A1
                4 Furkan        B2
                5 Fatima        A2
                6 Rashid        A1
```
(i)   Write down the command that will give the following output.
```
                    Name        Grade
                0 Aamir Khan   A1
                1 Nuzut         A2
                2 Ishrar        B1
                3 Shahid        A1
                4 Furkan        B2
```
   a. print(Gr.iloc[0:5])
   b. print(Gr[0:5])
   c. Both
   d. None

(ii) The teacher needs to add a column called Percentage with the following data :[92,89,None,95,68,None,93]. Help her to identify the correct set of statement/s from the given options :
a. Gr.column['Percentage']=[92,89,None, 95,68,None ,93]
b. Gr[' Percentage']=[92,89,None, 95,68,None ,93]
c. Gr.loc['Percentage']= [92,89,None,95,68,None,93]
d. Both (b) and (c) are correct

(iii) Which of the following statement/s will drop the column Grade by name?
a. Gr.drop('Grade')
b. Gr.drop('Grade', axis=1)
c. Both d. None of the above

(iv) Which of the following command will display the column labels of the DataFrame?
a. print(Gr.columns())
b. print(Gr.column())
c. print(Gr.column)
d. print(Gr.columns)
(v) The class teacher wants to delete the first row. Help her choose the command to do so:
a. Gr.drop(0, axis =0)
b. Gr.drop(0,axis="index")
c. Gr. drop([0,1,2], axis=0)
d. Both (a) and (b) are correct