CLASS XII SUMMER HOMEWORK ASSIGNMENT 2024-25

1. English:

https://acrobat.adobe.com/id/urn:aaid:sc:AP:a8269c58-50f7-4527-978d-ff5ed11b2881

2. Mathematics –

Note: The assignment to be completed in a separate note book.

RELATIONS & FUNCTIONS:
1. Find fog if fx=8x3 & gx= x13
2. If fx= x2+4 then find f-1(x).
3. If A=3,5,7 & B=2,4,9 and R is a relation from A to B given by "is less than" write R as a set of ordered pairs.
4. Show that the relation R in the set z of integers given by R= a,b:2 divides a-b is an equivalence relation.
5. Show that the relation R on R defined as R= a;b:a≤b is reflexive & transitive but not symmetric.

INVERSE TRIGONOMETRY:
1. Write the principal value of
   (a) sin 2π3 ,   (b) -12 ,   (c) -13 ,
a.   sin 2--32
b.   -32 +-12
c.   3--2

2.   If cot =2θ write the value of

3.   Solve the following equation for x: sin 12+x =1

Continuity

Discuss the continuity of the following functions:
1. fx=2x-x is continuous at x=0.
2. fx={sin 2x sin 3x   x≠0 2   x=2   is continuous at x=0.
3. fx={5ax-2b   x<1 5ax-2b   x=1 3ax+b   x>1   is continuous at x=1, find a and b.
4. fx={x2-25x-5   when x≠5 k   x=5   find k when it is continuous at x=5.
5. Find k , fx={ x2-2x-3x+1   x≠-1 k   x=-1 . find k when it is continuous at x=-1

Simple Differentiation : differentiate the following w.r.to x.
   1. cos x   2. ex   3. cos x2+1   4. sec x   5. cos2x   6. sin x x
7.   e2x 8. 2-3x   9. x-34   10. 13-5x   11. x2+1x   12. sin-13x 13. tan-1(3x+5)   14. esin x   15. log sin x   16. Sin⁻¹ 2x1+x2   17. Cos ⁻¹ 1-x21+x2   18.   tan ⁻¹ 1+x2-x 19. tan ⁻¹ cos x 1+sin x   20. Sec ⁻¹ x2+1x2-1   21. log 1+sin x 1-sin x   22.   tan-1acos x-bsin x bcos x+asin x   23. cos-1cos x
      24. Cot ⁻¹ 1+sin x   + 1-sin x 1+sin x   - 1-sin x   25.   a + xa - x .

Differentiation of implicit functions, logarithmic, higher order differentiation & parametric differentiation.
1. If Y = log tan 4+x2 , find dydx
2. If y = ex-y find dydx .
3. If xy=yx   find dydx .
4. If x+y= a   find dydx.
5. If   xpyq=x+yp+q show that   dydx=yx.
6. If   1-x2+1+y2=a (x-y) then show that   dydx=1-y21-x2 .

7. If $y = (x)\cos x + \cos x \sin x$; find $\frac{dy}{dx}$.

8. Find $\frac{dy}{dx}$ if $x = a\cos2\theta$; $y = b\sin2\theta$.

9. Find $\frac{dy}{dx}$ if $x = \frac{3at}{1+t^3}$; $y = \frac{3at^2}{1+t^3}$.

10. If $y = \csc x + \cot x$ then prove that : $\sin x \frac{d^2y}{dx^2} = y^2$.

11. If $y = b\,e^x + c\,e^{2x}$ then prove that : $\frac{d^2y}{dx^2} - 3\frac{dy}{dx} + 2y = 0$.

12. If $y = \sin^{-1} x\sqrt{1-x^2}$ prove that $1-x^2 \frac{d^2y}{dx^2} - 3x\frac{dy}{dx} - y = 0$.

13. If $y = A\cos \log x + B\sin (\log x)$ then prove that $x^2 \frac{d^2y}{dx^2} + x\frac{dy}{dx} + y = 0$.

14. If $x + y = a$ then show that $\frac{d^2y}{dx^2} = \frac{x+y}{2x^{3/2}}$.

15. If $y = \tan^{-1} x^2$; then prove that $1+x^{2\,2}\frac{d^2y}{dx^2} + 2x 1+x^2 \frac{dy}{dx} - 2 = 0$.

MATRICES AND DETERMINANTS:-

1. Solve: $x^2 y^2 -3x 2y = -2 9$

2. Find a matrix D such that CD – AB = 0 where A=2 -1 3 4 ; B=17 -1 47 -13 and C=2 5 3 8 .

3. If A=4 5 2 1 then prove that A-3I=2(I+3A-1).

4. If A = 2 -1 1 -1 2 -1 1 -1 2 ; verify: A3-6A2+9A-4I=0 and find A-1.

5. Using matrix method solve the following equations.
   i. $3x-2y+3z=8$; $2x+y+z=1$; and $4x-3y+2z=4$.
   ii. $2x-3y+3z=10$; $1x+1y+1z=10$ and $3x-1y+2z=13$.

6. The sum of three numbers is 6. If we multiply third number by 3 and add second number to it, we get 11. By adding first and third numbers, we get double of the second number. Represent it algebraically and find the numbers using matrix method.

7. If $A = \begin{bmatrix} 2 & -3 & 5 \\ 3 & 2 & -4 \\ 1 & 1 & -2 \end{bmatrix}$ find A^{-1}. Using A^{-1}, Solve system of linear equations:

$$2x - 3y + 5z = 11$$
$$3x + 2y - 4z = -5$$
$$x + y - 2z = -3$$

3. Applied Maths -

Holiday homework Assignment
Class XII/ Applied Mathematics/2024-25

MCQ/ one mark Questions

1 A and B are invertible matrices of the same order such that $(AB)^{-1} = 8$.
If $|A| = 2$, then $|B|$ is equal to
a)16   b) 4   c)6   d) $\frac{1}{16}$

2 The cofactor of the element a_{23} in $\begin{vmatrix} 1 & 2 & -3 \\ -4 & 5 & 3 \\ 0 & 8 & -9 \end{vmatrix}$ is

a)8   b) -4   c)13   d) −8

3 Let $A = \begin{bmatrix} x & -3 & 1 \\ 2 & y & 1 \\ 1 & 1 & z \end{bmatrix}$. If xyz =7, x + y - 6z =11 and I is the identity matrix
of order 2. Then , A. adjA is equal to
a)7I   b) -5I   c)13I   d) −8I

4 If $\Delta = \begin{vmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{vmatrix}$ and A_{ij} is Cofactor of a_{ij}, then value of Δ is given by

a)$a_{11}A_{11} + a_{12}A_{21} + a_{13}A_{31}$ b)$a_{11}A_{21} + a_{12}A_{22} + a_{13}A_{23}$

c) $a_{31}A_{11} + a_{32}A_{12} + a_{33}A_{13}$ d) $a_{12}A_{12} + a_{22}A_{22} + a_{32}A_{32}$

5 If A is a square matrix of order 2 and |adj.A |= 9, then |A| is equal to

a)3   b)9   c)27   d)81

6 For any 2×2 matrix if A(adjA) = $\begin{bmatrix} 10 & 0 \\ 0 & 10 \end{bmatrix}$ then |A| is equal to

a) 20   b) 100   c)10   d) 0

7 The Value of k for which the matrix $\begin{bmatrix} k & 2 \\ 3 & 4 \end{bmatrix}$ has no inverse is

a) $k = \frac{3}{2}$ b)) $k = \frac{2}{3}$ c)) $k \neq \frac{3}{2}$ d)) $k \neq \frac{2}{3}$

8 If A is square matrix satisfying $A^2 = I$, then what is the inverse of A ?

9 If A is non singular matrix of order 3 and $|A| = 3$, then find $|2A|$

10 If A is a square matrix of order 3 such that $|adjA| = 64$. Find $|A^T|$.

11 For what value of k, the matrix $A = \begin{bmatrix} 2-k & 3 \\ -5 & 1 \end{bmatrix}$ is not invertible ?

Two Marks Questions

12 Write A^{-1} for $A = \begin{bmatrix} 2 & 5 \\ 1 & 3 \end{bmatrix}$

13 If $A = \begin{bmatrix} 4 & 2 \\ 7 & -4 \end{bmatrix}$, write A^{-1} in terms of A

14 Find the adjoint of $\begin{bmatrix} 1 & -3 \\ 6 & -2 \end{bmatrix}$

15 $A = \begin{bmatrix} 2 & 3 \\ 5 & -2 \end{bmatrix}$ be such that $A^{-1} = kA$, then find the value of k.

Four/Six marks Questions

16 If $A = \begin{bmatrix} 3 & -5 \\ -4 & 2 \end{bmatrix}$, show that $A^2 - 5A - 14I = 0$. Hence find A^{-1}

17 Find the adjoint of the matrix $\begin{bmatrix} 4 & 1 & 3 \\ -3 & 6 & 4 \\ -2 & -2 & 5 \end{bmatrix}$

18 Verify A. (adj A) = (adj A). A = |A| I for the following matrices

1) $\begin{bmatrix} -3 & -2 & 1 \\ -5 & 3 & 4 \\ -4 & -2 & 0 \end{bmatrix}$ 2) $\begin{bmatrix} 3 & 0 & -3 \\ -5 & 6 & 4 \\ -1 & -2 & 5 \end{bmatrix}$

19 Using matrix method:

Find A^{-1}, if $A = \begin{bmatrix} 1 & 2 & -3 \\ 2 & 3 & 2 \\ 3 & -3 & 4 \end{bmatrix}$ and hence solve the equations

$$x + 2y - 3z = -4$$
$$2x + 3y + 2z = 2$$
$$3x - 3y - 4z = 11$$

20. Using Crammer's rule solve the following system of equations:

$$2x - 3y + 5z = 11 \ , \ 3x + 2y - 4z = -5 \ , \ x + y - 2z = -3$$

Project Work

1. Fibonacci sequence: Its' history and presence in nature.
2. Prepare a questionnaire to collect information about money spent by your friends in a month on   activities like travelling, movies, recharging of the mobiles, etc. and draw interesting conclusions. **3.** Check out the local newspaper and cut out examples of information depicted by graphs. Draw   your own conclusions from the graph and compare it with the analysis given in the report. **4.** Each day newspaper tells us about the maximum

temperature, minimum temperature, and   humidity. Collect the data for a period of 30 days and represent it graphically. Compare it with   the data available for the same time period for the previous year.

5. Analysis of career graph of a cricketer (batting average for a batsman and bowling average for a   bowler). Conclude the best year of his career. It may be extended for other players also – tennis,   badminton, athlete.

6. Predicting stock market crash.

7. Predicting the outcome of an election – exit polls.

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4. Physics -

**(Electrostatics & Current electricity)**
Level (A) Back to Basics

1 Two charges of +3 μC and -6 μC are placed 5 cm apart. Calculate the force between them.
2 What is electric potential? How is it related to electric field?
3 State Gauss's law and explain its significance in electrostatics.
4 A parallel plate capacitor has plates with area 0.02 m² and separation of 0.005 m. If the charge on each plate is 5 μC, calculate the capacitance.
5 How does the capacitance of a parallel plate capacitor change if the distance between the plates is doubled?
### Level (B) Moderate

6he plot of the variation of potential difference across a combination of three identical cells in series, versus current is as shown below. What is the emf of each cell ?
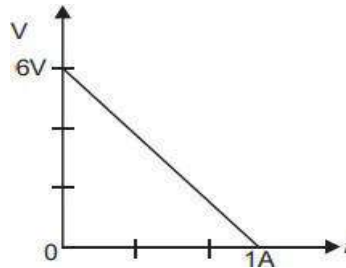
7 Define resistivity of a conductor. Plot a graph showing the variation of resistivity with temperature for a metallic conductor. How does one explain such a behaviour, using the mathematical expression of the resistivity of a material.

8 (a) Derive an expression for the energy stored in a parallel plate capacitor C, charged to a potential difference V. (b) Obtain the equivalent capacitance of the network given below. For a supply of 300 V, determine the charge and voltage across C4 .
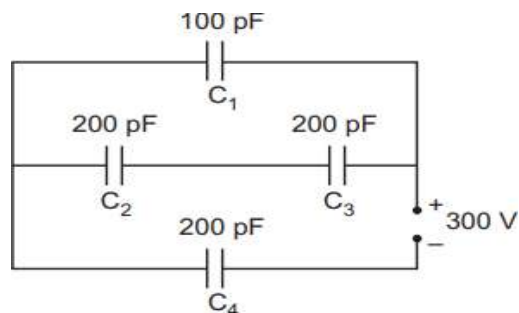

9 Calculate the current drawn from the battery in the given network.

R_5 = 2, R_1 = 1, R_2 = 5, R_3 = 4, R_4 = 2, 4 V
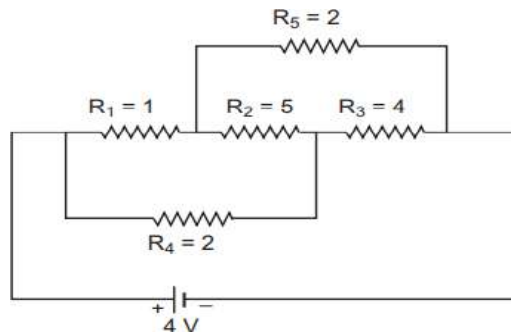
10 Use Gauss's law to derive the expression for the electric field between two uniformly charged large parallel sheets with surface charge densities σ and - σ respectively.

Level (C) Higher Order thinking skill based

11 The figure shows experimental set up of a meter bridge. When the two unknown resistances X and Y are inserted, the null point D is obtained 40 cm from the end A. When a resistance of 10 W is connected in series with X, the null point shifts by 10 cm. Find the position of the null point when the 10 W resistance is instead connected in series with resistance 'Y'. Determine the values of the resistances X and Y.
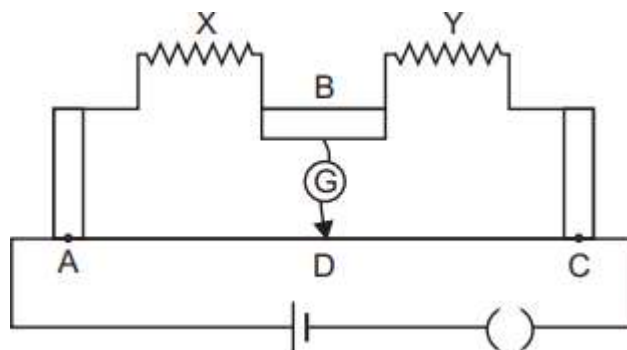
12 (a) A charge +Q is placed on a large spherical conducting shell of radius R. Another small conducting sphere of radius r carrying charge 'q' is introduced inside the large shell and is placed at its centre. Find the potential difference between two points, one lying on the sphere and the other on the shell. (b) How would the charge between the two flow if they are connected by a conducting wire? Name the device which works on this fact.

13 Two charges 5×10^{-8} C and -3×10^{-8} C are located 16 cm apart. At what point(s) on the line joining the two charges is the electric potential zero? Take the potential at infinity to be zero.

14 A 600pF capacitor is charged by a 200V supply. It is then disconnected from the supply and is connected to another uncharged 600 pF capacitor. How much electrostatic energy is lost in the process?

15 Determine the current in each branch of the network shown in Fig.
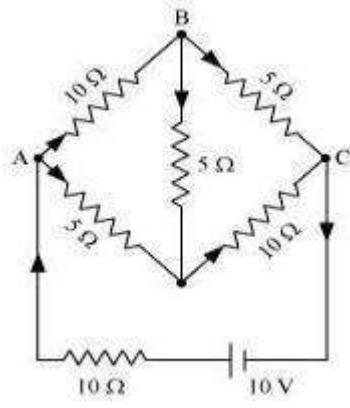
5. Chemistry -

SECTION A : BACK TO BASICS

1. Solution A is obtained by dissolving 1g of urea in 100 g of water and solution B is obtained by dissolving 1g of glucose in 100 g of water. Which solution will have a higher boiling point and why?
2. Why does molality of a solution remain unchanged with change in temperature while its molarity changes?
   3. Why is the cooking temperature in pressure cooker higher than in open pan? 4.
   When is the value of Van't Hoff factor more than one?
   5. Why is an increase in temperature observed on mixing chloroform with acetone? 6.
   How is that alcohol and water are miscible in all proportions?
7. What temperature change is expected during the mixing of two liquids whose solution shows a negative deviation from Raoult's law?
   8. Why is benzene insoluble in water but soluble in toluene?
   9. Define an ideal solution.
   10. What do you understand by "colligative properties"?

SECTION B : GENERAL QUESTIONS

1. A solution of 3.800 g of sulphur in 100 g of CS_2 (boiling point =46.30°C) boils at 46.66°C. What is the formula of sulphur molecule in this solution? (Atomic mass of sulphur = 32 a.m.u and K_b for CS_2= 2.40 K kg mol^{-1})
2. "The solution of a non-volatile solute boils at a higher temperature than the pure solvent." Show this relationship on a graphic diagram.
3. How is relative lowering of vapour pressure defined for a solution consisting of a volatile solvent and a non-volatile solute? How is this function related to the mole fraction of the solvent and of the solute?
4. In a solution of urea, 3.0 g of it is dissolved in 100 ml of water. What will be the freezing point of this solution? State the approximation made if any. [K_f for water = 1.86 K kg mol^{-1}, molar mass of urea = 60 gm mol^{-1}]
   5. Draw a suitable diagram to express the relationship for ideal solutions of A and B between vapour pressures and mole fractions of components at constant temperature. 6. Calculate the number of moles of methanol in 5 liters in its 2 m solution, if the density of the solution is 0.981Kg L^{-1}.(Molar mass of methanol =32 mol^{-1})
   7. With the help of a neat diagram indicate why the solution of a non-volatile solute should freeze at a temperature lower than the freezing point of the pure solvent. 8. For determining molar masses of macro-molecular substances in solution, the osmotic pressure measurement method is preferred to measurement of any other colligative property of solution. Give two reasons for it.
9. Give one example each of miscible liquid pairs showing positive and negative deviations from Raoult's law. Give one reason each for such deviations.
10. An aqueous solution of glucose is made by dissolving 10 g of glucose ($C_6H_{12}O_6$) in 90 g of water at 303 K. If vapour pressure of pure water at 303 K be 32.8 mm Hg, what would be the vapour pressure of the solution?

SECTION C : HIGHER ORDER THINKING SKILL QUESTIONS

1. The molal freezing point depression constant of benzene (C_6H_6 is 4.90K kg mol^{-1}. Selenium exists as a polymer of the type Se_x When 3.26 g of selenium is dissolved in 226 g of benzene, the observed freezing point is 0.112 °C lower than for pure benzene. Deduce the molecular formula of selenium. (Atomic mass of Se = 78.8 g mol^{-1})
2. Calculate the freezing point of a solution containing 0.520 g glucose ($C_6H_{12}O_6$) dissolved in 80.20 g of water. For water Kf = 1.86 K kg mol^{-1}.
   3. (a) What are non-ideal solutions?
      (b) State the type of non-ideality exhibited by a solution of cyc10hexaneand ethanol or a solution of acetone and chloroform. Give reason for your answer.

4. On dissolving 3.24 g of sulphur in 40 g of benzene, boiling point of solution was higher than that of benzene by 0.81 K. K_b value for benzene is 2.53 K kg mol^{-1}. What is molecular formula of sulphur? (Atomic mass of sulphur=32 g mol^{-1})

5. The vapour pressure of pure benzene at 25°C is 639.7 mmHg and the vapour pressure of a solution of a non-volatile solute in benzene at the same temperature is 631.9 mm Hg. Calculate mole fraction of solute and molality of solution.

6. Assuming complete ionization, calculate the expected freezing point of solution prepared by dissolving 6.00 g of Glauber's salt, $Na_2SO_4.10H_2O$ in 0.1 Kg of H_2O (Kf for H_2O= 1.86 K kg mol^{-1}) [At. mass of Na=23, S=32, O=16, H=1 a.m.u.]

7. An aqueous solution freezes at 272.4 K, while pure water at 273 K. Determine (i) the molality of the solution (ii) boiling point of solution (iii) lowering of vapour pressure of water at 298 K. (Given Kf= 1.86 K kg mol^{-1}, K" = 0.5]2 K kg mol^{-1} and vapour pressure of pure water is 23.757 mm Hg)

8. At 298 K, the vapour pressure of pure water is 23.75 mm Hg.

   (a) At the same temperature calculate the vapour pressure over 10% aqueous solution of an organic compound whose molecular weight is 60 g mol^{-1}.

   (b) What will be the osmotic pressure of this solution of 298 K? (R = 0.082 L atm K^{-1}mol^{-1})

9. One liter aqueous solution of sucrose (molar mass = 342 g mol^{-1}) weighing 1015 g is found to record an osmotic pressure = 4.82 atm at 293 K. What is the molality of the sucrose solution? R=0.0821 atm K^{-1} mol^{-1}.

10. A solution containing 12.5 g of a non-electrolyte substance in 175 g of water gave a boiling point elevation of 0.70 K. Calculate the molar mass of the substance. (K_b=0.52 K kg mol^{-1}). --------------

6. Biology -

(A) Project work: Prepare a project on any topic of your choice. Your project should be 15-20 pages and should include:

- · Cover page.
- · Certificate (CBSE format)
- · Index
- · Well written Content
- · Case study with evidence such as your photographs of performing the experiment.
- · Bibliography

Your project should be predominantly handwritten. Some suggested topics are:

- · Eco-friendly products and practices.
- · Any organ system of the body (Anatomy, physiology)
- · Any disease with 2 case studies.
- · Topic from biotechnology
- · Any investigatory project.
- · Any other topic related to the subject.

(B) Complete written work of all the specimens you have observed in the lab and all the practical performed so far.

7. Computer Science -

Submit a <u>SYNOPSIS</u> of the project which is to be made in Python with the following features:

· Menu Driven Events
· Use of Functions
· Python Libraries
· File Handling

GUIDELINES

The aim of the class project is to create something that is tangible and useful using Python file handling / Python - SQL connectivity.

This should be done in groups of two students. The aim here is to find a real world problem that is worthwhile to solve using Python and other tools.

Students should visit local businesses and ask them about the problems that they are facing. For example, if a business is finding it hard to create invoices for filing GST claims, then students can do a project that takes the raw data (list of transactions), groups the transactions by category, accounts for the GST tax rates, and creates invoices in the appropriate format. Students can be extremely creative here.

They can use a wide variety of Python libraries to create user friendly applications such, software for their school, hospital, hotel, restaurant, library, railways, airlines, inventory, payroll, software for their disabled fellow students, and mobile applications, of course to do some of these projects, some additional learning is required.

The students should avoid plagiarism and violations of copyright issues while working on projects.

8. History -

Please select the topic for History practical project work and start the research work .
You can share the content of the project work with the teacher and can seek guidance and necessary Inputs.

Please read all the instructions carefully:
As discussed in the class

1.The project work to be done individually or in a group.

2.Please select any one topic (suggestive list is attached below)and mail it to the teacher for final approval so as to avoid repetition.

3.Please mail the draft of the topic of your project work for supervising the process of project completion, so at hat the teacher can guide you by providing necessary inputs, resources etc. to enrich the subject content.

4.Each student to have a separate project file.

5.The project should be minimum of 25 to 30 pages each.

6. Use colourful sheets for the work and spiral binding.

7.Each individual /group has to prepare Power point presentation related to the topic.

8.The groups can present role play, drama, songs, bulletin board, poem related to the topic.

9.The project should be totally research and survey based.
10.The project must be neat and well presented and must be completely handwritten.
11.Students have to preserve the initial draft of the project as well as any research papers that they may have used. (To be attached at the end of the project)
12.The project work must be completed well on time.
A FEW SUGGESTIVE TOPICS FOR CLASS XII PROJECTS :
1. The Indus Valley Civilization-Archaeological Excavations and New Perspectives
2. Town planning and artefacts of the Harappan civilization
3.The History and Legacy of Mauryan Empire
4. "Mahabharat"- The Great Epic of India
5. The History and Culture of the Vedic period
6. The growth and development of the Varna system in the early societies depicting examples from Mahabharat.
7. Buddha Charita
8. A Comprehensive History of Jainism
9. Discovering the Stupas
10. Comparative study of Stupas and Pillar edicts
 11. "The Mystical Dimensions of Sufism
12. Bhakti and Sufi saints
13. The Philosophy of Guru Nanak Dev
14. The Vision of Kabir
15. Through the Travellers eye: Al-Biruni, Ibn Batuta, Francois Bernier(Choose any one or two of the following)

16. The Architectural Culture of the Vijayanagar Empire
17. Comparative Analysis of the Land Revenue Systems introduced by the Britishers in India
18. The Revolt of 1857- Causes; Planning & Coordination; Leadership, Vision of Unity
19. Global legacy of Gandhian ideas
20. An insight into the Indian Constitution

9. Political Science

Please select the topic for Political Science practical project work for the Board Exam 2025 and start the research work.

You can share the content of the project work with the teacher and can seek guidance and necessary Inputs.

 Please read all the instructions carefully:

As discussed in the class

 1.The project work to be done individually or in a group.

2.Please select any one topic (suggestive list is attached below) and mail it to the teacher for final approval so as to avoid repetition.

 3.Please mail the draft of the topic of your project work for supervising the process of project completion, so at hat the teacher can guide you by providing necessary inputs, resources etc. to enrich the subject content.

 4.Each student to have a separate project file.

 5.The project should be minimum of 25 to 30 pages each. Ensure that the content is now dark shades of the sheet.

 6. Use colourful sheets for the work and spiral binding.

 7.Each individual /group has to prepare Power point presentation related to the topic. It's must.

8.The groups can present role play, drama, songs, bulletin board, poem related to the topic. Bring in more creativity in your work.

9.The project should be totally research and survey based.

 10.The project must be neat and well-presented and must be completely handwritten.

11.Students have to preserve the initial draft of the project as well as any research papers that they may have used. (To be attached at the end of the project)

12.The project work must be completed well on time.

Topics: Suggested by the CBSE are:

1.NAM- 1961 to present times.

2. Division of Germany with special focus on the construction and dismantling of the Berlin Wall.

3. CIS-Central Asian Republics

4. Disintegration of USSR with special focus on Gorbachev.

5. Arab Spring

6. Cover the negative as well as positive aspects of the relationship between India and the following countries. Focus on any one of the following (current updates should be highlighted): a) Relationship between India and Russia b) Relationship between India and China c) Relationship between India and Pakistan d) Relationship between India and Bangladesh

7.ASEAN

8. European Union and BREXIT

 9. BRICS 10. SAARC

11. India's Nuclear Policy

12. United Nations with focus on India's candidature in the Security Council.

13. UN Agencies – UNICEF, UNESCO, WHO

14. Pandemics: Covid 19- Its global impact (focus on worldwide cooperation and preparedness along with controversies (please collect newspaper clippings for the same)

15. Partition of India-Theory behind it and its legacy

16. Comparison between NITI AAYOG and Planning Commission and their contribution in India's Development.

17. Election 2019- Rise of BJP and Downfall of Congress (1989-2019).

18. Emergency – A blot on Indian Democracy

19.NDA III and NDA IV – Social and Economic welfare programmes.

10. Geography -

COMPLETE THE FOLLOWING WORK

1. Statistical diagrams: a. Vertical, horizontal, multiple, compound, percentage bar diagram
   b. Line graph, polygraph, line and bar diagram
   C. Pie diagram
2. Data and sources of data, collection, processing, analysis and presentation
3. Spatial Information system
4. Statistics- measures of Central Tendency- mean, median and mode

PART 2 THEORY

Questions from chapters 2, 4, 6 and 7 of Book 1 have been given.

11.Economics

Q1. "In a two-sector economy domestic income is equal to national income". Comment.

Q2. State whether the statements are True or False. Give reasons.

a) A final good may also undergo transformations.

b). Time dimension of capital decides whether it is stock or flow.

c) Bread is always a consumer good.

Q3.Unforeseen obsolescence of fixed capital assets during production is: (Choose the correct alternative)

(a) Consumption of fixed capital

(b) Capital loss

(c) Income loss

(d) None of the above

Q4. Which of the following products are intermediate products and final products? Give reasons.

(i) Wheat and rice purchased by households

(ii) Purchase of ticket for train journey by an individual

(iii) Purchase of a car by an employer for office use by his employees.

Q5. Which of the following is within the domestic territory of India?

(Choose the correct alternative)

(a) State Bank of India in UK

(b) Google office in India

(c) Office of Tata Motors in USA

(d) Russian Embassy in India

Q6. Which of the following will be included in gross national product of India? (Choose the correct alternative)

(a) Profits earned by a foreign company in India

(b) Salary paid to Americans working in Indian Embassy in America

(c) Salaries received by Indians working in Russian Embassy in India

(d) Salaries received by Indians working in Indian Embassy in Korea

Q7. Factor income earned by the domestic factors of production employed in the rest of the world – Factor income earned by the factors of production of the rest of the world employed in the domestic economy?   (Choose the correct alternative)

(a) Net exports

(b)Net factor income from abroad

(c) Net compensation of employers

(d)Net retained earnings

Q8. Suppose in an imaginary economy GDP at market price in a particular fiscal year was `4000 crore, National Income was ` 2500 crore, Net Factor Income paid by the economy to Rest of the World was ` 400 crore and the value of Net Indirect Taxes was ` 450 crore. Estimate the value of consumption of fixed capital for the economy from the given data.

Q9. Market price is always more than factor cost. True/False? Give a reason.

Q10. Explain why subsidy is added to and indirect tax is deducted from domestic product at market price to arrive at domestic product at factor cost.

Q11"National income is always greater than domestic income". Do you agree with the given statement? Support your answer with a valid reason.

Q12"National income exceeds domestic income only when exports are greater than imports". Comment.

12. Accountancy -

1.Girish andSatish are partners in a firm. Their capitals on April 1, 2003 were Rs, 5,60,000 and Rs. 4,75,000 respectively. On August 1 s003 they decided that their Capitals should be Rs. 5,00,000 each. The necessary adjustment in the capitals were made by introducing or withdrawing cash. Interest on Capital is allowed at 6% p.a. You are required to compute interest on capital for the year ending March 31, 2004.2.Sai and Ram entered into partnership sharing profits and losses in the ratio of 2:1. Their capitals were Rs. 90,000 and Rs. 60,000. The profit during the year were Rs. 45,000. According to partnership deed, both partners are allowed salary, 700 per month to Sai and Rs. 500 per month to Ram. Interest is allowed on capital @ 5% p.a. The drawings at the end of the period were Rs. 8,500 for Sai and Rs. 6,500 for Ram. Interest is to be charged @5%p.a. on drawings. Prepare partners capital accounts, assuming that the capital accounts are fluctuating.3.On 31st March 2006 after the close of accounts, the capitals. Of Mountain, Hill and Rock stood in the books of the firm at Rs. 4,00,000: Rs.3,00,000 and Rs. 2,00,000 respectively. Subsequently, it was discovered that the interest on capital @10% p.a. had been omitted. The profit for the year amounted to Rs. 1,50,000 and the partner's drawings had been MountainRs. 20,000 Hill Rs. 15,000 and Rock Rs. 10,000.4.X. Y are partners with capitals of Rs. 1,00,000 and Rs. 80,000 respectively and their profit sharing ratio is 2:1. Interest on capital is agreed @ 12%p.a. Y is to be allowed an annual salary of Rs. 6,000. The profit of the year 1013 amounted to Rs. 50,000. Manager is entitled to a commission of 10% of the profits. Prepare Profit & Loss App. Account.5.A, B and C are partners with Fixed Capitals of Rs. 1,00,000 : Rs. 2,00,000 and Rs. 3,00,000 respectively. Their partnership deed provides that: a) A is to be allowed a monthly salary of Rs. 600 and B is to be allowed a monthly salary of Rs. 400. B) C will be allowed a commission of 5% of the net profit after allowing salaries of A and B. C) Interest is to be allowed on Capitals @ 6% d) Interest will be charged on partner's annual drawings at 4% e) The annual drawings were: B Rs. 10,000 and C Rs. 15,000. The net profit for the year ending 31st March 2004 amounted to Rs. 1,72,000. Prepare Profit and Loss Appropriation Account.6.A, B and C entered into partnership on 1st April 2013 with capitals of Rs.20,00,000, Rs. 8,00,000 and Rs. 5,00,000 respectively. On 1st July 2013, B advanced Rs. 2,00,000 and on 1st December 2014 C advanced Rs. 1,00,000 by way of loans to the firm. The profit and loss account for the year ended 31.3.2014 disclosed a profit of Rs. 7,70,000 but the partners could not agree upon the rate of interest on loans and the profit sharing ratio. Prepare partner's capital a/c and loan a/cs.

7. X and Y are partners in a firm sharing profits and losses in the ratio of 3:2 with capitals of Rs. 10,00,000 and Rs. 5,00,000 respectively. As per the partnership deed, they are to be allowed interest on capital @ 8% p.a. The net profit for the year ended 31st March, 2008 before providing for interest on capital amounted to Rs. 45,000. Show the distribution of profit.

8. Mr. Shyam is a partner in a firm. He withdrew the following amounts during the year 2013.

Month RS.

January 31 8,000

March 31 6,000

June 30 5,000

September 30 12,000

October 31 10,000

Calculate interest on drawings @ 9% p.a. for the year ended 31st December 2013.

9. Calculate the interest on drawings of Mr. Adhi @ 8% p.a. for the year ended 31st March 2013, in each of the following alternative cases:

i) If he withdrew Rs. 5,000 in the beginning of each quarter

ii) If he withdrew Rs. 6,000 at the end of each quarter.

iii) If he withdrew Rs. 10,000 during the middle of each quarter.

10. Calculate the interest on drawings of Shri Ganesh @ 9% p.a. for the year ended 31st March

2014, in each of the following alternative cases:

i) If he withdrew Rs. 4,000 p.m in the beginning of every month.

ii) If he withdrew Rs. 5,000 p.m at the end of every month

iii) If he withdrew Rs. 6,000 p.m

iv) If he withdrew Rs. 72,000 during the year

v) If he withdrew Rs. 12,000 in the beginning of each quarter

vi) If he withdrew Rs. 18,000 at the end of each quarter

vii) If he withdrew Rs. 18,000 at the end of each quarter

viii) If he withdrew Rs. 18,000 during the middle of each quarter.

11. Gupta is a partner in a firm. He drew regularly Rs., 800 at the beginning of every month for the six months ending 30th June 2013. Calculate interest on drawings at 15%p.a.

12. A, B and C are partners with capital of Rs. 80,000, Rs. 40,000 and Rs. 30,000 respectively. Their profit sharing ratio was 2:1:1. After the accounts of the partnership have been drawn up and the books closed off, it is discovered that interest on capitals @ 8%p.a. as provided in the partnership agreement has been omitted to be recorded. Instead of altering the Balance Sheet it is decided to pass necessary adjusting entry at the beginning of the next year . You are required to give the necessary journal entry.

13. Girish andSatish are partners in a firm. Their capitals on April 1, 2003 were Rs, 5,60,000 and Rs. 4,75,000 respectively. On August 1 s003 they decided that their Capitals should be Rs. 5,00,000 each. The necessary adjustment in the capitals were made by introducing or withdrawing cash. Interest on Capital is allowed at 6% p.a. You are required to compute interest on capital for the year ending March 31, 2004.

14. Sai and Ram entered into partnership sharing profits and losses in the ratio of 2:1. Their capitals were Rs. 90,000 and Rs. 60,000. The profit during the year were Rs. 45,000. According to partnership deed, both partners are allowed salary, 700 per month to Sai and Rs. 500 per month to Ram. Interest is allowed on capital @ 5% p.a. The drawings at the end of the period were Rs. 8,500 for Sai and Rs. 6,500 for Ram. Interest is to be charged @5%p.a. on drawings. Prepare partners capital accounts, assuming that the capital accounts are fluctuating.

15. On 31st March 2006 after the close of accounts, the capitals. Of Mountain, Hill and Rock stood in the books of the firm at Rs. 4,00,000: Rs.3,00,000 and Rs. 2,00,000 respectively. Subsequently, it was discovered that the interest on capital @10% p.a. had been omitted. The profit for the year amounted to Rs. 1,50,000 and the partner's drawings had been Mountain Rs. 20,000 Hill Rs. 15,000 and Rock Rs. 10,000. Prepare Profit & Loss App. Account.

16. X. Y are partners with capitals of Rs. 1,00,000 and Rs. 80,000 respectively and their profit sharing ratio is 2:1. Interest on capital is agreed @ 12%p.a. Y is to be allowed an annual salary of Rs. 6,000. The profit of the year 1013 amounted to Rs. 50,000. Manager is entitled to a commission of 10% of the profits. Prepare Profit & Loss App. Account.

17. Alka, Barkha and Charu are partners in a firm having no partnership agreement. Alka, Barkha and Charu contributed Rs. 2,00,000, Rs. 3,00,000 and Rs. 1,00,00 respectively. Alka and Barkha desire that the profits should be divided in the ratio of capital contribution. Charu does not agree to this. Is charu Correct? Give reason.

18. Suresh and Ramesh are partners in a firm with capitals of Rs. 10,00,000 and Rs. 15,00,000 respectively. They do not have a partnership deed. Ramesh wants to share the profits in the ratio of Capitals. State with reason whether the claim is valid?

19. X y and Z are partners sharing profits and losses in the ratio 3:2:1. After the final accounts have been prepared, it was discovered that interest on drawings @5% p.a had not been taken into consideration. The drawings of the partners were : X Rs. 15,000 Y Rs. 12,600 Z Rs. 12,000. Give the necessary adjusting journal entry.

20. If a fixed amount is withdrawn on the last day of each quarter, for what period interest will

be calculated on total drawing?

21. A, B and C are partners decided that no interest on drawings is to be charged to any partner. But after one year C wants that interest on drawings should be charged to every partner . State how C can do this.

22. A and B were partners sharing profits in 2:1s ratio. During the year ended 31st March 2013 A's drawing were Rs. 5,000 per month in the beginning of every month and B's drawings were Rs. 2,500 per month at the end of every month. After the preparation of final accounts, it was discovered that interest on A's drawings @12%p.a was not taken into consideration. Give the necessary adjusting entry.

23. P, Q and R are partners sharing profits in the ratio of 2:1:1. Their capitals as on 1st April 2013 were Rs. 50,000, Rs. 30,000 and Rs. 20,000 respectively. At the end of the year ending 31st March, 2011 it was found out that interest on capitals @ 12%p.a. salaries to P, Rs. 500 per month and Rs. 1,000 per month were not adjusted from the profits. Show adjusting entry to be made in the next year for above adjustments.

24.A, B and C are partners in a firm sharing profits in the ratio of 4:3:3. . Their fixed capitals were: Rs. 1,00,000, Rs. 2,00,000 and Rs. 3,00,000 respectively. For the year 2013 interest on capital was credited to them @ 10% instead of 9% p.a. Pass the necessary adjusting journal entry.

25.Sachin, Kapil and Rashmi have been sharing profits in the ratio of 3:2:1 respectively.Rashmi wants that she should share profits equally along with Sachin and Kapil and she further wants that change in profit sharing ratio should be applicable retrospectively for the last three years. Other partners have no objection to this. The profits for the last three years were Rs. 60,000, Rs. 47,000 and Rs. 55,000. Record the adjustment by means of a journal entry.

13. Business Studies -

1	Policy formation is the function of: a) Top management b) Middle of management c) Lower level management d) All of the above
2	Coordination can be identified as: a) Function of management b) Essence of management c) An objective of management d) Very necessary ingredient
3	Coordination gives birth to: a) Impeccable planning b) Omni presence of management c) Unity of action d) Unity of command
4	The production manager of Anil Ltd. is able to achieve the target production of 15,000 with in prescribed time. However, to achieve the target on time, additional Rs. 1,40,000 were paid as overtime wages to employees. The production manager is: (a) Efficient but not effective (b) Effective but not efficient (c) Both effective and efficient (d) Neither effective nor efficient
5	Which of the following is incorrect in respect of personal objectives of management? (a) Offering competitive salaries and perks (b) Reframing job profiles to add more peer recognition and self respect (c) Better implementation and monitoring of policies for personal growth and colleagues (d) Making it clear to employees that they should keep personal aspirations and professional commitments separate in order to bring more discipline
6	Which of the following is incorrect in respect of functions of management? (a) Planning is deciding in advance for what is to be done and how. (b) Organising assigns duties and brings clarity in work relationships (c) Staffing is recruiting better people and make them perform even better (d) Coordination is ensured by top management in order to get maximum efficiency
	Co-ordination is the essence of management, for the achievement of harmony of individual effect towards the accomplishment of group goals. Coordination is the process whereby an exception develops an orderly pattern of group efforts among his subordinates and secures unity of action in the pursuit of common purposes. (refer to the questions 7, 8 and 9 below)

7	Why co-ordination is so important?
	(a) Individual efforts towards the accomplishment of group goals
	(b) Because co-ordination is an all-pervasive function
	(c) Because co-ordination is the responsibility of all managers
	(d) Because co-ordination ensures unity of action
8	What is co-ordination?
	(a) Interdependence of different processes
	(b) Secures unity of action for group goals
	(c) Functional differentiation
	(d) Co-ordination if continuous process
9	Is co-ordination a continuous process?
	(a) Yes, it is never ending
	(b) Co-ordination is pervasive
	(c) No, it pauses during planning stages
	(d) Co-ordination is ever going
	Science refers to systemized body of knowledge which is acquired on the basis of observation and experiments and verification of this knowledge is possible. Ex. A person completes the study of engineering. He acquires theoretical knowledge of the subject while studying. His acquiring of knowledge in this manner is a science. (refer to the questions 10, 11 and 12 below)
10	What type of knowledge is technical education?
	a) subject knowledge
	b) practical knowledge
	c) theoretical knowledge
	d) book knowledge
11	What type of knowledge is gained by studying science?
	a) based upon verified facts
	b) technical skills
	c) experimental attitude
	d) both a and c
12	What is meant by science?
	a) cause & effect relationship
	b) systematic study
	c) universal application
	d) verification of validity and prediction of results
13	Henry Fayol was born in:
	A) Japan
	B) America
	C) Germany
	D) France

14	Management principles are formed: A) in a science laboratory B) by experience of managers C) by experience of customers D) None of the above

15	Which of the following statement is false about Fayol and Taylor: A) Fayol was a mining engineer whereas Taylor was a mechanical engineer B) Fayol's principles are applicable in special situations but Taylor has universal application C) Fayol's principles are applicable at the top level management whereas Taylor's principles are applicable on the shop floor D) Fayol's principles were evolved through personal experience and Taylor's principles were derived through experimentation
16	Identify one of the principles of management, which will minimise the need for using penalties: A) Authority and Responsibilities B) Unity of direction C) Initiative D) Discipline
17	The principles of management are intended to apply to all types of organisations, businesses as well as non-business, small as well as large, public sector as well as private sector, manufacturing as well as service sectors. However, the extent of their applicability would vary with the : A) Nature of the organisation B) Business activity C) Scale of operations D) All of these
18	Identify the technique of Scientific Management used for determining the number of workers to be employed for a task: A) Time Study B) Method study C) Motion Study D) Fatigue Study
19	According to Taylor, even a small production activity like loading pigs of iron into boxcars can be scientifically planned and managed. This can result in tremendous savings of human energy as well as wastage of time and materials. The more sophisticated the processes, greater will be the future savings. Identify the principles of scientific management highlighted in aforesaid situation: A) Science, not rule of thumb B) Harmony, not discord C) Co-operation, not individualism D) Development of each and every

20	Simran Man Trucks Ltd. manufactures multi axle trucks and mini trucks. It has two separate divisions for both of them. Each division has its own in charge, and execution resources. On no account the working of two divisions overlap. Which principle of management is followed by Simran Man Trucks Ltd.? A) Unity of Command B) Unity of Direction C) Authority and Responsibility D) Division of Work

	Fayol had clarified that Principles of Management had a fair amount of unpredictability factor due to human aspects of management. Since Human behaviour is sum total of events, moods, characteristics and even mood of the group, nothing can be said with a sense of finality. What principles are to be applied at what time, in what situation and to what degree (or extent) – it all depends on the experience, efficiency and decision-making power of the manager. Thus, the principles advocated by Fayol have element of flexibility. (refer Question below)
21	What principle are to applied in a given situation is relative to: A) Experience & efficiency of managers B) Experience of managers C) Experience, efficiency, intuitiveness of managers D) capability of managers
22	What are Fayol's principles of management? A) Principles of management are final B) Principles of management are flexible C) Principles of management are unpredictable D) Principles of management are hit or miss type

23	Name the process of working with and through others to effectively achieve organisational objectives by efficiently using limited resources in a changing environment.
	     (a) Management
	     (b) Planning
	     (c) Organising
	     (d) Controlling

24	The basic objective of any business is survival.
	     (a) True
	     (b) Partially true
	     (c) False
	     (d) May be

25	"Management has to adapt itself according to the changing environment". Which characteristic is highlighted in the above statement?
	(a) Continuous process
	(b) Group activity
	(c) Dynamic function
	(d) Goal-oriented
26	Management is -- --
	(a) A science
	(b) An art
	(c) Both science and art
	(d) None of the above
27	'Star Trax & Co. is run by a group of dynamic leaders.' They often experience that their zeal to lead the organisation is curbed by multiplicity of objectives.' How can they strike balance to attain different objectives. Explain.
28	"Domino's pizza keeps introducing a new variety of pizzas in its menu". Which feature of management is highlighted here. Explain.
29	Both Fayol and Tylor were knowledgeable gentlemen, Can you elaborate the way they derived management principles?

30	Management is art. Do you agree to the above statement? Give three reasons in support of your answer.
31	'Ravi was a service provider for some MNCs regarding office management. He observed that some of managers ran their businesses as per 'hit and miss method' while other carried on their businesses carefully.' Explain the importance of management as observed by Ravi.
32	What is significance of management principles in real life situations?

33 Prepare a project based upon survey of various business organisations of your choice, about the Principles of management followed by such businesses.

The students are required to visit any one of the following:
1.   A departmental store
2.   An industrial unit
3.   Any other organisation as suggested by teachers.

The students are supposed to do survey based of principles of management founded by Henry Fayol Or scientific principles of management by F W D Tylor.

The trick is to identify the principles and techniques of management implemented in the organisation.

#Presentation and submission of Project.
i)   The minimum length of any project should be 25 to 3o pages.
ii)   The project should be in the students' hand writing.
iii)   The cover page should include title of the project, student information.
iv)   Introduction
v)   Topis with suitable heading.
vi)   Conclusion
vii)   Photographs and graphs etc as applicable.

14.Entrepreneurship-

TOPICS FOR THE PROJECT:
1. Business Plan
2. Market Survey
Steps involved in the conduct of the project:
Students 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 for the Project Work: Introduction of topic/title

- **Identifying the product/service**
- **Various stakeholders and effect on each of them**
- **Use of different tools for market assessment and it's analysis**
- **Implication of 4P's in the process of marketing**
- **Calculation of various costs involved in the business planning process**
- **Validity, reliability, appropriateness and relevance of data used for research work and for**
- **Presentation in the project file**
- **Presentation and writing that is succinct and coherent in project file**
- **Citation of the materials referred to, in the file in footnotes, resources section, bibliography etc.**

15. Psychology -

Format for preparing a case profile:

1. Introduction- An introduction of two to three pages presenting the nature of the problem, its incidence, likely causes, and possible counseling outcomes. A summary of the case.

2. Identification of data-
   · Name (may be fictitious)
   · Diagnosed problem
   · Voluntary or referral (i.e. by whom referred- such as teacher, parent or sibling)

3. Case History-
   · A paragraph giving age, gender, school attended, class (grade) presently enrolled in, etc.
   · Information about socio-economic status (SES) consists of information about mother's/father's education and occupation, family income, house type, number of members in the family— brothers, sisters and their birth order, adjustment in the family, etc.
   · Information about physical health, physical characteristics (e.g., height and weight), any disability/illness (in the past and present), etc.
   · Any professional help taken (past and present), giving a brief history of the problem, attitude towards counseling (indicating the motivation to seek help)
   · Recording signs (i.e. what is observed in terms of facial expressions, mannerisms, etc.) and symptoms (i.e., what the subject reports for example. fears, worries, etc.)
4. Concluding comments

16. Legal Studies -

Summer assignment: Project work
PROJECT GUIDELINES for Class XII INTRODUCTION: The student is required to do a project on 'Understanding Case Laws' OBJECTIVES: The project work aims to enable students to:

- ☐
  Identify a legal problem and provide its remedy

- ☐
  Select relevant legal sources and conduct research

- ☐
  Analyse and distinguish between types of cases

- ☐
  Apply case laws and relevant statutory laws METHODOLOGY-: The student is required to select any 3 decided cases related to the curriculum where one must be civil in nature, one criminal and one constitutional in character.

The research on the cases must include the following points: Name of the case Parties to the case Citation to the case Bench Nature of the case (Civil, Criminal or Constitutional) Facts of the case and issues involved Decision of the case including Ratio Decidendi and Obiter Dicta

17. Physical Education -

PE CLASS XII PRACTICAL FILE S. No FLOWCHART OF CONTENT
1. Cover Page
2. Certificate
3. Acknowledgement
4. Index (S.No. – Topic – Page Number)
5. Main Part: A. Practical 01: SAI Khelo India Fitness Test – Content already Shared on Google Classroom a. 50mts Sprint Test b. 600mts Run/Walk Test c. Sit and Reach Test d. Partial Curl-up Test. e. Push-ups (Boys)/Modified Push-ups (Girls) Test. f. Standing Broad Jump g. Shuttle Run (4X10M) B. Practical 02: Brockport Physical Fitness Test & Johnson Metheny Test C. Practical 03: Games Proficiency in Games and Sports – (Football, Hockey, Cricket and Basketball) a. Introduction b. History c. Rules and Regulation d. Names of 05 prominent International Player. e. Names of 05 prominent National Player. f. Names of 05 recent Arjuna Awardees Player. g. Names of 05 recent Dronacharya Award Awardees Player D. Practical 04: Yoga Practices – Yoga for lifestyle Disease a. Obesity 1. Hal asana 2. Dhanurasasna 3. Tadasana 4. Pavanmuktasana b. Asthama 1. Bhujangasana 2. Uttan Mandukasana 3. Gomukhasana 4. Vakrasana c. Diabetes 1. Ushtrasana 2. Ardh Matsyendrasana 3. Ushtrasana 4. Vajarasana d. HyperTension 1. Uttanpadasana 2. Shavasana 3. Makarasana 4. Sarla Matyasana
6. Biblography/Reference LAST DATE OF SUBMISSION: 25/06/202

18. Painting –

Draw 20 Figurative sketches in the sketchbook.

Prepare notes for the Modern Trends in Indian Art from Panoramic Indian Painting and NCRT (https://ncert.nic.in/textbook/pdf/lefa107.pdf)

One Gond folk art on half Imperial sheet in any paint medium.

○

19. Hindustani Vocal Music -

Prepare project file :

Introduction and notation of Thah (Ek Gun), Dugun, Tigun, and Chaugun of Taal Jhaptaal, Roopak, Tilwara and Dhamar.

Introduction of Tanpura, Basic Knowledge of the Structure and Tuning of Tanpura.

Sargam in "Raga Bhairav" with Taal Dadra, Roopak, Jhaptaal, Teen Taal in Notation.

Discription of Ragas :
Write Introduction and Notation of Lakshan Geet, Chota Khayal, Bada Khayal, Tarana and Dhamar of Raag Bhairav, Raga Malkauns, Raga Bageshwari with Alap and Tana.

Listen to Ragas Bhairav, Malkouns and Bageshwari in the voices of different singers.

Know about the musical journey, life, music education of the singers whom you have been influenced by listening to them and listen or watch their interviews.

20. Dance-

Project file to be completed with all the topics given.
Learn and practice all the bols.
Do the taali practice of all the bols
Do the notation writing practice of all the bols
Learn the life sketches of the kathak gurus.
Read the Elementary introduction of Natya Shastra and Abhinaya Darpan grantha