

D.D.M.S P OBUL REDDY PUBLIC SCHOOL
SUBJECT ENRICHMENT ACTIVITY -2021

CLASS: XII (SCIENCE, COMMERCE, HUMANITIES)

Subject	Assignment								
English	<p>General Instructions:</p> <ol style="list-style-type: none"> Question 2 is compulsory. <ul style="list-style-type: none"> You may answer either question 1 or 3 Each question carries 5 marks <ul style="list-style-type: none"> Ø Marking scheme <ul style="list-style-type: none"> Content 1½ M expression 1½ M Art Integration / Visual Appeal-1 M Credibility /Real Life Connection)- 1 M Make sure your project is <ul style="list-style-type: none"> § original § written in your best handwriting, § with proper margins § presented neatly <p>Please note: Your project must be manually prepared. No typed script or copied ideas will be accepted.</p> <ol style="list-style-type: none"> Scan your work and upload within the stipulated time in pdf format for the teacher to evaluate it. <p style="text-align: center;"><u>QUESTIONS</u></p> <ol style="list-style-type: none"> Draft an Interview that Franz takes, of his parents where they share their feelings when the Prussians took control of the French districts Alsace & Lorraine. (200 words) A comic strip of a child procrastinating and later regretting for not having paid any attention to the lessons taught. 100-150 words Write a paragraph/poem to show your relationship with your mother. Support your write up with a collage of the photos or/ and pictures drawn by you of quality time (different moments) spent with your mother and /or depicting how she manages her responsibilities. (for example, draw/ take pics of mothers doing various chores or activities at home, market, office (if applicable) like cooking, hosting, serving food, reading stories to kids, giving tea to your grandmother and /or functioning at various roles in her work place) (100-150 words) 								
Physics	<p>1. Collect information regarding Investigatory Project on any topic of your choice in Physics (preferably from XII portion) under the following headings and make a file.</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">a) Title of the Project</td><td style="width: 50%;">b) Objective/Purpose/Aim</td></tr> <tr> <td>c) Introduction/Theory</td><td>d) Materials Required</td></tr> <tr> <td>e) Method/Procedure</td><td>f) Observations</td></tr> <tr> <td>g) Conclusion/Result</td><td>h) Applications</td></tr> </table>	a) Title of the Project	b) Objective/Purpose/Aim	c) Introduction/Theory	d) Materials Required	e) Method/Procedure	f) Observations	g) Conclusion/Result	h) Applications
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	<p>i)References/Bibliography</p> <p>Suggested Investigatory Projects(2021-22)</p> <ol style="list-style-type: none"> 1. To study various factors on which the internal resistance/EMF of a cell depends. 2. To study the variations in current flowing in a circuit containing an LDR because of a variation in (a) the power of the incandescent lamp, used to 'illuminate' the LDR (keeping all the lamps at a fixed distance). (b) the distance of an incandescent lamp (of fixed power) used to 'illuminate' the LDR. 3. To find the refractive indices of (a) water (b) oil (transparent) using a plane mirror, an equi convex lens (made from a glass of a known refractive index) and an adjustable object needle. 4. To design an appropriate logic gate combination for a given truth table. 5. To investigate the relation between the ratio of (i) output and input voltage and (ii) number of turns in the secondary coil and primary coil of a self-designed transformer. 6. To investigate the dependence of the angle of deviation on the angle of incidence using a hollow prism filled one by one, with different transparent fluids. 7. To estimate the charge induced on each one of the two identical styrofoam (or pith) balls suspended in a vertical plane by making use of Coulomb's law. 8. To study the factor on which the self-inductance of a coil depends by observing the effect of this coil, when put in series with a resistor/(bulb) in a circuit fed up by an A.C. source of adjustable frequency. 9. To study the earth's magnetic field using a tangent galvanometer. <p>NOTE: The above projects are suggested only. You can choose any other project of your choice. Better to choose a concept or topic with working model</p>
Chemistry	<p><u>Worksheet on Solutions (Theory)</u></p> <ol style="list-style-type: none"> 1. Which of the following pairs of aq. solutions would be isotonic and justify your answer. A) 0.1m solution of urea and sucrose B) 0.1m solution of glucose and common salt 2. The dissolution of a solid in a liquid is either exothermic or endothermic whereas the dissolution of a gas in a liquid is exothermic. Explain? 3. Explain why there is an increase in the resulting volume is observed when acetone is added to ethanol whereas there is a decrease in the resulting volume is observed when acetone is added to chloroform? 4. Of 0.1m solution of glucose and common salt, which one will have a higher boiling point and why? 5. Can the same solute have $i > 1$ and $i < 1$ in different solvents? Explain with one example. 6. How does sprinkling of salt help in clearing the snow covered roads in hilly areas? Explain the phenomenon involved.

7. Why is not possible to obtain pure ethanol by fractional distillation? Explain.
8. Derive an expression to show that RLVP of a solution is equal to the mole fraction of the solute in it when the solvent alone is volatile.
9. What is the relation between van't Hoff factor and degree of dissociation of a weak electrolyte if it undergo
 - a) dissociation b) association
10. Why do you get sometimes abnormal molar masses of the solute by using colligative properties. Explain with suitable example.

***Write all lab activities in your practical record book which we discussed in our class.

Numerical worksheet on solutions

1. Two solutions of N_2 gas were prepared by dissolving it in equal volumes of water and under the same pressure of N_2 . While the solution A was prepared at 293K ($K_H = 76.48$ k bar) the solution B was prepared at 298K ($K_H = 86.80$ k bar). The pressure above both the solutions was then reduced to one bar and the amount of N_2 gas released was measured. If 2.8 milli mole N_2 gas was released by the solution A, how much amount would be released by solution B?
2. Vapour pressure of two liquids A and B in pure state at 300k are 410torr and 356torr respectively. A solution was prepared by mixing certain amounts of these liquids. Would the vapour phase in equilibrium with this solution be richer in A or B as compared to the solution and why?
3. K_f and K_b for benzene are 5.07 k kg/mol and 2.53 k kg/mol respectively. A solution of a non volatile solute in benzene showed an elevation of 0.50k. What would be the depression in freezing point of this solution ?
4. On the basis of the given observation in each case predict a) whether $i=1$, $i>1$ or $i<1$ and comment on the molecular state of the solute whether normal, association or dissociation. 1) ΔT_b expected 0.82k, observed 0.82k 2) Π expected 1.8 bar, observed 2.1 bar 3) ΔT_f expected 1.68k , observed 0.82k 4) molar mass expected 72.5 g/mol , observed 58.2g/mol
5. At 350k the vapour pressure of a solution of two liquids A and B is given by the relation $p=300+500X_B$. What are the vapour pressures of the pure components at this temperature?
6. 10cc of pure ethanol of density 0.785g/cc was diluted with water to a final volume of 100cc. The density of the resulting solution was found to be 0.98665g/cc. Calculate a) percent by mass of ethanol b) molarity of ethanol in the solution?
7. A 6.9M solution of KOH in water contains 30% by weight of KOH. Calculate the density of the solution?
8. A storage battery contains 4.27M H_2SO_4 and has density 1.25g/ml. What is the molality of H_2SO_4 in the solution?
9. A 5% solution of cane sugar is isotonic with 0.887% solution of urea. Find the molar mass of urea.
10. Calculate the boiling point of a solution containing 0.61 g of benzoic acid in 5 g of CS_2 . Assuming 84% dimerisation of acid. The boiling point and K_b of CS_2 are 46.2°C and 2.3 k

	kg/mol respectively.
Biology	<p>Topic: Investigatory Project (Title, Certificate ,Index,Etc Approx 20 pages with colourful pictures)</p> <p>Instructions:</p> <ul style="list-style-type: none"> • Steps in Making an Investigatory Project • Select a Topic. The first step in making an investigatory project is selecting a topic to research on.it • Make a Research Question and Title. • Design the Experiments and Procedures • Write the Abstract of the Project. • Conduct the Experiments • Write a Research report • Create a Visual Aid./Proof
Accountancy	<ol style="list-style-type: none"> 1. Give two circumstances in which the fixed capital of partners may change? (1M) 2. How would you calculate interest on drawings of equal amounts drawn on the Last day of every month? Explain with an example. (1M) 3. Hima and Gayatri are partners in a firm. They have not entered into a partnership deed but had agreed on following (2M) <ol style="list-style-type: none"> A. Hima should get salary of Rs 6,000 pm B. Gayatri wants to take commission on net profit 5% C. Interest on Partners capital wants to take @ 6% D. Interest will be charged on drawings @ 6% E. Partner cannot be admitted without the consent of both the partners. <p>How will the following disputes resolved?</p> <ol style="list-style-type: none"> 1. Gayatri Demands for salary? 2. Hima demands that her son Harry be admitted as partner for 30% share to be given out of her share of profit to which Gayatri disagree. 4. Ramesh, a partner in the firm has advanced a loan of Rs. 1,00,000 to the firm and has demanded on interest @ 9% per annum. The partnership deed is silent on the matter. How will you deal with it? (1M) 5. Distinctions between Profit and loss and profit and loss appropriation account? (With 5 points basis) (2M) 6. A and B are partners in business. Their capitals at the end of year were Rs. 48,000 & Rs. 36,000 respectively. During the year ended March 31st 2020 A's Drawings and B's drawings were Rs. 8, 000 & Rs. 12, 000 respectively. Profits before charging interest on capital during the year were Rs. 32, 000. Calculate Interest on partners' capitals @ 10% p.a. (2M) 7. A and B entered into partnership on 1st April , 2009 without any partnership deed. They introduced capitals of 5,00,000 and 3,00,000 respectively. On 31st October, 2009, A advanced 2,00,000 by way of loan to the firm without any agreement as to interest. The profit and loss account for the year ended 31.03.2010 showed a profit 4,30,000 but

the partners could not agree upon the amount of interest on loan to be charged and the basis of division of profits. Pass a journal entry for the distribution of profit between the partners and prepare the capital A/cs of both the partners and Loan Account of A.

(3M)

- 8.** Arun and Arora were partners in a firm sharing profits in the ratio of 5:3. Their capitals as on 1.4.2010 were Arun 60,000 and Arora 80,000. They agreed to allow interest on capital @ 12% p.a. and to charge on drawings @ 15% p.a. The profit of the firm for the year ended 31.3.2011 before all above adjustments were 12,600 The drawings made by Arun were 2,000 and by Arora 4,000 during the year Prepare Profit and Loss Appropriation Account of Arun and Arora Show your calculations clearly.

(2M).

- 9.** A and B were partners sharing profits in the ratio 3:2. The accountant prepared profit and loss Account, profit and loss Appropriation account, Partners capital Account, but forgot to post few amounts in these accounts. You are required to complete these below given amounts by posting correct amounts.

(3M)

Profit and loss Accounts Account for the year ending 31st March 2019

Dr		Cr	
Particulars	Amounts	Particulars	Amounts
interest on loan (A)	900	Profit for the year	-----
Net profit	-----		

Profit and loss Appropriation A/c for the year ending 31st March 2019

Dr		Cr	
Particulars	Amounts	Particulars	Amounts
Interest on Capital @5%		Profit and loss A/c	-----
A- 2500		Interest on Drawings	
B- 2000	-----	A/c	
To Salary A/C		A – 120	-----
A- 24,000		B – 180	
B- 12,000			
To A captila A/c – $3/5 = 17280$	-----		
To B capital A/c – $2/5 =$ -----	-----		

Dr Partners capital Accounts

Cr

Particulars	A	B	Particulars	A	B
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Drawings A/c	5,0000	4,000	Balance B/d	-----	----
Interest on Drawings			Interest on Capital A/c	-----	----
A/c	-----	-----	Salary A/c	-----	----
Balance C/d	-----	-----	P & L Appropriation	-----	----
			A/c		

10. A and B are partners sharing profits and losses in the ratio of 3:1. On 1st April, 2018, their capitals were A Rs. 50,000 and B Rs.30, 000. During the year ended 31st March, 2019 they earned a net profit of Rs.50.000. The terms of partnership are:

- (a) Interest on capital is to be allowed @ 6% p.a.
- (b) A will get a commission @ 2% on turnover.
- (c) B will get a salary of 500 per month.
- (d) B will get commission of 5% on profits after deduction of all expenses including such commission.

Partner's drawings for the year were: A Rs. 8,000 and B Rs. 6,000. Turnover for the year was Rs. 3, 00,000. After considering the above facts, you are required to prepare Profit and Loss Appropriation Account. **(3M)**

Business Studies

- 1) Kriti Limited is offering a travel package for 15 destinations worldwide with a free insurance on the bookings for the month of December, 2020. Identify the feature of marketing being described in the above lines.
 - (a) Needs and wants
 - (b) Creating a market offering
 - (c) Customer value
 - (d) Exchange mechanism **(1Mark)**
- 2) Praneetha Limited has chalked out an action plan in order to increase its market share in the international market by 20% in the next one year. The action plan contains the details about how the production levels will be increased, promotional activities will be carried out and so on. Identify the type of marketing function being described in the given lines. **(1Mark)**
 - (a) Gathering and analysing market information
 - (b) Marketing planning
 - (c) Product designing and development
 - (d) Packaging and labeling
- 3) Answer the following. **(3Marks)**

i) Identify the component of branding being depicted below.

- (a) Brand name
- (b) Brand mark
- (c) Trademark
- (d) Generic name



ii) Pranav has decided to start a business of manufacturing crockery and cutlery items. In order to give a unique identification to his products, he has decided to assign the brand name 'Elegan' as it will enable the firm to secure and control the market for its products. Identify the relative advantage of branding to the marketers being described in the above case.

- (a) Facilitates differential pricing
- (b) Ease in the launching of new products
- (c) Facilitates product differentiation
- (d) Assists in advertising and display programmes.

iii) What does the symbol given below denotes?

- (a) Brand name
- (b) Brand mark
- (c) Trademark
- (d) Generic name



4) Identify the Marketing Management philosophy adopted in the following cases:

(4Marks)

- a) Sanjeev is engaged in manufacturing of refrigerators. He surveyed the market and found that customers need a refrigerator with a separate provision of water cooler in it. He decided to launch the same refrigerator in the market.
 - b) Joshitha, a dealer in school uniforms, decided to maximize her profit by using different aggressive promotional efforts.
 - c) Disha, a school bag manufacturer decided to improve the product for profit maximization and thus added a water bottle holder to the existing design.
 - d) Trishal, a shoe manufacturer for school students, decided to maximize his profit by producing and distributing at large scale and thereby reducing the average cost of production.
- 5) Charan purchased a bottle of pickle from the local grocery shop. The information provided on the bottle was not clear. He fell sick on consuming it. He filed a case in the District Forum under Consumer Act and got the compensation.

	<p>(5Marks)</p> <p>a) Identify the important aspect neglected by the marketer in the above case.</p> <p>b) Briefly explain the functions of the aspect identified in (a) above.</p> <p>6) Marketing is concerned with exchange of goods and services from producers to consumers or users in such a way that maximises the satisfaction of customers' needs. From the view point of management function, numbers of activities are involved under this concept. The producer need perform various activities. Explain all the activities or functions of this concept. (6Marks)</p>
Sociology	<p>Project Work is being introduced in the Sociology Curriculum with effect from 2008-09. The need for introduction of project work flows from the vision provided by the National Curriculum Framework (NCF 2005) and more importantly, from the nature of sociology as a discipline. The core values of NCF 2005 emphasize avoidance of rote learning and introduction of active learning through experimental processes so that education becomes more contextual and updated.</p> <p>The Project Work in Sociology is being introduced with an intention to expose students to the excitement and challenges of its practical side, and to provide them with first hand experience of the methods and techniques involved in systematic social enquiry.</p> <p><u>RESOURCES FOR THE PROJECT:</u></p> <p>The initial resources for research projects are contained in the NCERT textbooks for class XI as well as class XII. Students should revisit Chapter 5 in Book 1 of class XI, Introducing Sociology, wherein research methods are discussed. Chapter 7 of Book I of Class XII is devoted to the Projects The students are encouraged to go through the chapter, especially the table given on page no. 150 -151 for project reference.</p> <p><i>Every student has to compulsorily undertake one project, from the following topics:</i></p> <ol style="list-style-type: none"> 1. Changing role of women in Indian society. 2. Covid-19 and its impact on Indian society. 3. Effects of Globalization on Culture and Traditions. 4. Peer groups as a mode of social control. 5. Youth culture: Influence and Significance. 6. Role of mass media in society <p><u>Marks distribution of Project work :(2021-22)</u> <u>Max. Marks: 20</u></p> <p><u>A. Project undertaken during the academic year at school level :</u></p> <ol style="list-style-type: none"> 1. Introduction - 2 Marks 2. Statement of Purpose – 2 Marks 3. Research Question – 2 Marks 4. Hypothesis & Methodology–3 Marks 5. Data Analysis – 4 Marks 6. Conclusion & Limitations – 2 Marks <p style="text-align: right;">15 Marks</p>

PROJECT WORK (15 Marks):

The project must involve actual first hand research done by each student in close consultation with the teacher over the duration of the academic year.

GUIDELINES FOR PROJECT WORK:**PREPARATION AND SUBMISSION OF PROJECT REPORT:**

At the end of the stipulated term, each student will prepare and submit her/his project report. Each report must fulfill the following requirements:

1. The body of the Project Report will be of approximately 20-30 A4 Pages excluding additional appendices, questionnaires etc.
2. The Project Report should be handwritten by the students themselves, though they may include other illustrative material that is not hand – written.
3. The ***project report will contain the following matter:***
 - a) **Cover page**- Showing project title, student's information, school and session.
 - b) **List of contents**- Index.
 - c) **Acknowledgements and preface** -(Acknowledging the institute, libraries visited and people who have helped)
 - d) **Introduction**
 - e) **Rationale (Statement of the Purpose)** - The reason for the choice of the subject and its social significance.
 - f) **Methodology and Technique** - Mention the methodology e.g. questionnaire, case study, ethnographic description (i.e., a detailed description based on observation noted in a field diary or collected through Google forms).The students may use any method which is appropriate for the topic selected. Detailed steps and procedures adopted must be given.
 - g) **Presentation of evidence** - There must be a major section formally presenting the evidence gathered as a part of the project. This can be in the form of tables, extracts from interviews, reports on case studies or discussion of documentary data (newspapers, articles, magazines, diaries, photographs). However, there should be value addition by the student and it must not be a simple reproduction of the original material.
 - h) **Analysis of evidence & conclusions** - Each project should summarize its conclusions in a separate section. This can be brief but should be clearly and carefully stated. If possible, some suggestions can be given for further enhancement in the areal subject studied. This section can also include a statement describing the limitations of the study.
 - i) **Bibliography/ Appendix** or other supporting material - This should include the references to relevant books and other sources used for the study. The appendix will include questionnaires, list of interviews, documents or another material used in the study, if any.

Note: The evaluation is to be based on the substance of the report, not on purely decorative or illustrative material.

Political Science	<div> <input type="checkbox"/> Cover Page <input type="checkbox"/> Certificate Page (Given by teacher) <input type="checkbox"/> Acknowledgement <input type="checkbox"/> Index / Content <input type="checkbox"/> Introduction - One Page <input type="checkbox"/> Sub-Topics according to CONTENT PAGE <input type="checkbox"/> Bibliography </div> <p style="text-align: center;">Tips for Preparing an Impressive Project</p> <div> <input type="checkbox"/> Select a topic from the list given by teacher <input type="checkbox"/> Check that proper content is available for the topic <input type="checkbox"/> Avoid selecting a very vast topic <input type="checkbox"/> Pictures and relevant maps should be included in the project , on left side of the pages (eye catchy , relevant and learn about it, why is it included information must be with student) <input type="checkbox"/> Give the description of the pictures, maps and table included in the project <input type="checkbox"/> Make the project presentable <input type="checkbox"/> Do not over decorate the project <input type="checkbox"/> A very bulky project is not appreciated <input type="checkbox"/> Write the bibliography carefully (Have information about it with student) <input type="checkbox"/> No of pages 35 to 40 only. <input type="checkbox"/> Proper formal border to the pages is necessary <input type="checkbox"/> Always ensure that the arguments and opposite opinions are included in the last paragraph before conclusion <input type="checkbox"/> Backup provided facts with academic resources which are reliable <input type="checkbox"/> Turn to statistics and data support or ideas. <input type="checkbox"/> Don't's <input type="checkbox"/> Addressing sensitive subjects, do not use harsh tone. <input type="checkbox"/> Avoid portrayal of one side of an issue unless working with personal reflection. <input type="checkbox"/> Stay neutral <input type="checkbox"/> No extensive quoting <input type="checkbox"/> Avoid colloquial language </div> <p style="text-align: center;">Choose any one topic from given below:</p> <div> <p>➤ Jammu and Kashmir with reference to revocation of Article 370 and current status in J & K</p> <p>➤ Operation Blue Star and assassination of Indira Gandhi</p> <p>➤ Godhra riots in 2002</p> <p>➤ Issues of governance and development – Modi govt. NDA IV</p> <p>➤ New Economic Reforms (1991) in India and globalization as a world phenomenon</p> <p>➤ Case study on impact of globalization on the Indian handicrafts sector.</p> <p>➤ European Union in context to BREXIT</p> <p>➤ BRICS</p> <p>➤ China – The next super power</p> </div>
Mathematics	<p style="text-align: center;">INVERSE TRIGONOMETRIC FUNCTIONS – WORK SHEET</p> <div> 1. Solve: $\sin^{-1}(1 - x) + \sin^{-1} x = \cos^{-1} x$ (Ans: $x = 0, 1$) </div> <div> 2. Solve: $\cos(\sin^{-1} x) = \frac{1}{6}$ (Ans: $x = \pm \frac{\sqrt{35}}{6}$) </div>

3. Solve: $\cos[2 \sin^{-1}(-x)] = 0$ (Ans: $x = \pm \frac{1}{\sqrt{2}}$)

4. If $\cos^{-1}\left(\frac{x}{2}\right) + \cos^{-1}\left(\frac{y}{3}\right) = \alpha$, then prove that $9x^2 - 12xy \cos \alpha + 4y^2 = 36 \sin^2 \alpha$

5. Simplify: $\sin\left[2 \tan^{-1} \sqrt{\frac{1-x}{1+x}}\right]$ (Ans: $\sqrt{1-x^2}$)

6. Show that: $\cot^{-1} \left[\frac{\sqrt{1+x^m} + \sqrt{1-x^m}}{\sqrt{1+x^m} - \sqrt{1-x^m}} \right] = \frac{\pi}{4} - \frac{1}{2} \cos^{-1}(x^m)$

7. Simplify: $\cos^{-1} \left[\frac{x + \sqrt{1-x^2}}{\sqrt{2}} \right]$ (Ans: $\sin^{-1} x - \frac{\pi}{4}$)

8. Show that: $\sin^{-1} \left[\frac{\sqrt{1+x^m} + \sqrt{1-x^m}}{2} \right] = \frac{\pi}{4} + \frac{1}{2} \cos^{-1}(x^m)$

9. Find the value of (i) $\sin^{-1} \left[\sin \frac{3\pi}{5} \right]$ (ii) $\cos^{-1} \left[\cos \frac{7\pi}{6} \right]$ (iii) $\tan^{-1} \left[\tan \frac{9\pi}{8} \right]$

10. Simplify: $\sin^{-1} [x\sqrt{1-x} - \sqrt{x}\sqrt{1-x^2}]$

11. Find the value of : (i) $\tan \left[\frac{7\pi}{12} - 2 \sin^{-1} \left(\frac{1}{2} \right) \right]$ (Ans: 1)

(ii) $\cos \left[\frac{\pi}{6} + 2 \tan^{-1}(1) \right] + \sin \left[3 \sin^{-1} \left(\frac{1}{2} \right) + 2 \cos^{-1} \left(\frac{1}{2} \right) \right]$ (Ans: $-\frac{1}{2}$)

12. Find principal values of: (i) $\sin^{-1} \left[\sin \left(\frac{-3\pi}{4} \right) \right]$ (Ans: $-\frac{\pi}{4}$),

(ii) $\cos^{-1} \left[\cos \left(\frac{-7\pi}{3} \right) \right]$ (Ans: $\frac{\pi}{3}$) (iii) $\tan^{-1} \left[\tan \left(\frac{-5\pi}{6} \right) \right]$ (Ans: $-\frac{\pi}{4}$) (iv) $\cos^{-1} \left[\cos \left(\frac{13\pi}{5} \right) \right]$ (Ans: $\frac{3\pi}{5}$)

13. Prove that : (i) $\sin \left[\frac{\pi}{2} - \cos^{-1} x \right] = x$ (ii) $\cos \left[\frac{\pi}{2} - \tan^{-1} x \right] = \frac{x}{\sqrt{1+x^2}}$

14. Write in simplest form : $\tan^{-1} \left[\frac{x}{a + \sqrt{a^2 + x^2}} \right]$ (Ans: $\frac{1}{2} \tan^{-1} \left(\frac{x}{a} \right)$)

15. Prove that : $\sin \left[\frac{1}{2} \{ \sin^{-1}(2x\sqrt{1-x^2}) + \cos^{-1}(1-2y^2) \} \right] = x\sqrt{1-y^2} + y\sqrt{1-x^2}$

16. Prove that: $\tan^{-1} x + \tan^{-1} \left(\frac{2x}{1-x^2} \right) = \tan^{-1} \left(\frac{3x-x^3}{1-3x^2} \right)$

17. Prove that: $\cos^{-1} x + \cos^{-1} \left[\frac{x}{2} + \frac{\sqrt{3-3x^2}}{2} \right] = \frac{\pi}{3}$

18. Simplify : (i) $\sin^{-1} \left[\frac{a \sin x + b \cos x}{\sqrt{a^2 + b^2}} \right]$ (ii) $\tan^{-1} \left(\frac{5x}{1-6x^2} \right)$ (iii) $\tan^{-1} \left(\frac{ax+b}{bx-a} \right)$ (iv) $\tan^{-1} \left(\frac{x}{1+6x^2} \right)$

19. If $\tan^{-1} x + \tan^{-1} y + \tan^{-1} z = \frac{\pi}{2}$, then prove that $xy + yz + zx = 1$

20. If $\cos^{-1} x + \cos^{-1} y + \cos^{-1} z = \pi$, then prove that $x^2 + y^2 + z^2 + 2xyz = 1$

21. Solve for x: (i) $\cos(2 \sin^{-1} x) = \frac{1}{9}$, $x > 0$ (ii) $\sin[\cot^{-1}(x+1)] = \cos[\tan^{-1} x]$ Ans: $\frac{2}{3}, -\frac{1}{2}$

22. Simplify: $\cos^{-1} \left[\frac{\sqrt{9+x} + \sqrt{9-x}}{6} \right]$ [Ans: $\frac{\pi}{4} + \frac{1}{2} \cos^{-1} \left(\frac{x}{9} \right)$]

23. Evaluate: $5\sec^2 \left[\tan^{-1} \left(\frac{15}{8} \right) \right] + 4\sin^2 \left[\sec^{-1} \left(\frac{13}{5} \right) \right]$

24. Prove that: $\tan \left[\frac{1}{3} \left\{ \tan^{-1} \left(\frac{3x-x^3}{1-3x^2} \right) + \tan^{-1} \left(\frac{3y-y^3}{1-3y^2} \right) \right\} \right] = \frac{x+y}{1-xy}$

25. Prove that: $3\cos^{-1} \frac{4}{5} = \pi - \tan^{-1} \frac{117}{44}$

DIFFERENTIATION

DIFFERENTIATE THE FOLLOWING FUNCTIONS WITH RESPECT TO X

1) e^{-x} 2) $e^{\cos x}$ 3) $e^{\cot 5x}$ 4) $e^{\cos x^2}$ 5) $e^{\cos^2 x}$ 6) $e^{\sin \sqrt{x}}$

7) $e^{\sqrt{\sec x}}$ 8) e^{e^x} 9) $e^{x \cos x}$ 10) $e^{\frac{\sin x}{\sqrt{x}}}$, 11) $e^{ax^2 + bx + c}$

12) $e^{\frac{1}{x}}$ 13) 2^x 14) $\left(\frac{5}{7} \right)^x$ 15) 3^{2x} 16) 5^{x^7} 17) 7^{x^2+3x} 18) $2^{(\cos x)^2}$

19) 5^{2-3x} 20) $10^{\sin x}$ 21) $10^{\frac{\tan x}{x}}$ 22) $\log \left(\frac{a+c \sin x}{a-c \sin x} \right)$ 23) $\log \sqrt{\frac{1+\sin x}{1-\sin x}}$ 24) $\log \log x$

25) $\log \log \log x^5$ 26) $\log(\sin \sqrt{x})$ 27) $\log(x + \sqrt{x^2 + a^2})$ 28) $\log(\tan x \log(x \tan x))$

29) $\log x \tan x$ 30) $\log(x \tan x)$ 31) $\log \left(\frac{(2x-3)^{\frac{5}{7}} (9-5x)^7}{\sqrt{5x-7}} \right)$.

INVERSE TRIGONOMETRIC FUNCTIONS – ART INTEGRATION

Draw the graphs of inverse trigonometric functions and shade their principal value branches with separate colour.

DIFFERENTIATION – ART INTEGRATION

1. Compose a song with the derivatives formulae in the tune of latest popular film song of your choice. (Record it and upload in the class WhatsApp group)

2. Prepare a dialogue on the importance of derivatives in the delivering style of your role model

or

favourite film hero / heroine or politician.

(Record it and upload in the class WhatsApp group)

Computer Science

Project Work:

The aim of the project is to create something that is tangible and useful using Python file handling/ Python-SQL connectivity with Insert, Update, Delete, Display Operations.

Ex: Database Name: School **Table Name:** Student

Table Attributes:

Adm_No int NOT NULL Primary Key, Name varchar(32) NOT NULL , Class int NOT NULL , Mobile_No varchar(10) NOT NULL , Email_id varchar(32) NOT NULL

Insert: To insert a new record in to the Student table

Update: To update an existing record based on the Adm_No

	<p>Delete: To delete an existing record based on the Adm_No</p> <p>Display: To show all the records available in the Student table.</p>												
Psychology	<p style="text-align: center;">Open Book Assignment Theoretical Research on Psychological Disorders</p> <p>In view of the case study orientation, students have to work on the below mentioned theoretical research for further assessment and outcomes.</p> <p>Students will be involved in collecting the information from the resources available such as meeting (families/children with psychological difficulties, looking into reference books, study signs, risk factors, and symptomology and treatment methodology) and treatment effectiveness.</p> <ul style="list-style-type: none">• Introduction about the topic/ history• Causes/Aetiology (Genetical and Environmental)• Signs and Symptoms• Risk Factors• Treatment (Modality, Medication and Therapeutic techniques involved) <p>Guidelines to follow while doing the project:</p> <ul style="list-style-type: none">• Hand written copies using plain white A4 sheets• Use of colour pens, sketch, pictures are allowed• Following the instructions /checklist given by teacher in maintaining page limit. <p style="text-align: center;">Marking Rubric</p> <table><tr><th>S. No.</th><th>Typology</th><th>Marks Allotted</th></tr><tr><td>1.</td><td>Understanding of the Topic- History/Aietiology</td><td>5M</td></tr><tr><td>2.</td><td>Studying and analysing Signs/Risk Factors/Treatment modality and effectiveness</td><td>5M</td></tr><tr><td>3.</td><td>Creating- Compiling the Information and presentation in class.</td><td>5M</td></tr></table>	S. No.	Typology	Marks Allotted	1.	Understanding of the Topic- History/Aietiology	5M	2.	Studying and analysing Signs/Risk Factors/Treatment modality and effectiveness	5M	3.	Creating- Compiling the Information and presentation in class.	5M
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Legal Studies	<p>ASSIGNMET 1. WRITE AN ESSAY ON ‘THE IMPORTANCE OF PRECEDENT IN JUDICIAL SYSTEM’. (6-8 Pages)</p> <p>CONTENTS:</p> <ul style="list-style-type: none">• INTRODUCTION• HISTORY• PARTS OF THE JUDICIAL PRECEDENT• HOW DOES ONE DETERMINE THE RATIO IN A JUDGMENT• DIFFERENT TYPES OF PRECEDENT• PROS & CONS OF ‘THE DOCTRINE OF STARE DECISIS’• CONCLUSION• REFERENCES (Pattern : Name of the author, name of the article / book, source.) <p>ASSIGNMENT 2. CHOOSE ANY THREE CASES LAWS FROM THE GIVEN LIST. MAKE A PRELIMINARY RESEARCH AND FIND OUT THE FACTS, ISSUES & JUDGMENT OF EACH CASE. (5- 6 pages / case)</p> <p>CONTENTS FOR EACH CASE STUDY:</p> <ul style="list-style-type: none">• INTRODUCTION/ BACKGROUND OF THE CASE												

	<ul style="list-style-type: none"> • FACTS OF THE CASE • ISSUES ARISED • LAWS INVOKED • JUDGMENT • REFERENCES ((Pattern : Name of the author, name of the article / book, source.) <p><u>GUIDELINES FOR SUBMISSION</u></p> <ul style="list-style-type: none"> ➤ THE PROJECT SHOULD BE HANDWRITTEN ➤ SHOULD BE WRITTEN IN PLAIN, WHITE, A4 SIZED SHEETS ➤ ONLY 20 – 25 LINES PER PAGE & ONLY ONE SIDE OF THE PAPER SHOULD BE UTILISED ➤ EVERY STUDENT MUST SELECT THE THREE CASES BEFORE 23rd OF APRIL AND THE SAME SHOULD BE INFORMED IN WRITING TO THE CONCERNED TEACHER. ➤ 2 DAY TIME WILL BE GIVEN FOR ANY CHANGES TO BE MADE AND NO CHANGES WILL BE ACCEPTED POST 25th OF APRIL. ➤ PAGE BORDERS ARE CUMPOLSORY & USE ONLY BLUE/BLACK PEN AND ONE MAY USE COLOR PENS ONLY FOR SIDE HEADINGS. <p>LAST DATE FOR SUBMISSION OF THE ASSIGNMENTS – 30.05.2021</p>
Economics	<p>Guidelines for Project Work in Economics (Class XII)</p> <p>The objectives of the project work are to enable learners to:</p> <ul style="list-style-type: none"> • probe deeper into theoretical concepts learnt in class XII • analyse and evaluate real world economic scenarios using theoretical constructs and demonstrate the learning of economic theory • follow up aspects of economics in which learners have interest, develop the communication skills to argue logically <p>The expectations of the project work are that:</p> <ul style="list-style-type: none"> • learners will complete only ONE project (ONE TOPIC) in the academic session • project should be of 4,500-5,000 words (excluding pictures, diagrams & graphs), • only hand-written <p>Scope of the project:</p> <ul style="list-style-type: none"> • 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 <p>Expected Checklist by the students:</p> <ul style="list-style-type: none"> • Introduction of topic/title • Details of the topic • Impact on the Indian economy • Advantages/Pros of the economic event or happening

- Disadvantages/Cons of the economics event or happening
- Major criticism related to the topic if any
- Government steps or initiative
 - Data analysis if any
- Social Media buzz
- Media coverage (Articles in print media)
- Students' own views or perceptions or opinion from the learning or the work
- Identifying the causes, consequences and/or Remedies of various stakeholders and effect on each of them
- Advantages and disadvantages of situations or issues identified
- Short-term and long-term implications of economic strategies suggested in the course
- Validity, reliability, appropriateness and relevance of data used for presentation in the project file
- Presentation and writing that is succinct and coherent in project file
- Final spiral binding
- Conclusion
- Citation of the materials referred to, in the file in footnotes, resources section, bibliography etc.

Marking Scheme :

Marks are suggested to be given as –

S.No.	Heading	Marks Allotted
1.	Relevance of the topic	3
2.	Knowledge Content/Research Work	6
3.	Presentation Technique	3
4.	Viva-Voce	8
	Total	20

Suggestive List of Projects :

- Micro and Small Scale Industries in India (Compare Telangana with Maharashtra)
- Food Supply Channel in India
- Contemporary Employment situation in India
- Disinvestment policy of the government
- Goods and Services Tax Act and its Impact on GDP
- Health Expenditure (of any two states)
- Human Development Index
- Inclusive Growth Strategy
- Self-help group of any two states in India
- Trends in Credit availability in India
- Monetary policy committee and its functions
- Role of RBI in Control of Credit
- Government Budget & its Components
- Trends in budgetary condition of India
- Exchange Rate determination – Methods and Techniques

- Currency War – reasons and repercussions
- Livestock – Backbone of Rural India
- Alternate fuel – types and importance
- Sarva Shiksha Abhiyan – Cost Ratio Benefits
- Golden Quadrilateral- Cost ratio benefit
- Minimum Support Prices and their relation with the primary sector
- Relation between Stock Price Index and Economic Health of Nation
- Waste Management in India – Need of the hour
- Minimum Wage Rate – approach and Application
- Digital India- Step towards the future
- Rain Water Harvesting – a solution to water crises
- Vertical Farming – an alternate way
- Corporate Social Responsibility (A case study of any two Indian Companies in ant two states and their comparison)
- Make in India – The way ahead
- Bumper Production- Boon or Bane for the farmer
- Rise of Concrete Jungle- Trend Analysis
- Organic Farming – Back to the Nature(A Case study of any 2 states in India with the organization)
- The Delhi Metro Project (A Case Study)
- The PNB Scam
- General Motors Exit from India
- BOB-Dena Bank Vijaya Bank Merger – A Case Study
- Atal Innovation Mission
- One Rank One Pension
- Regional Development of the North-East (Case study on the 7 sisters)
- Delhi Air Pollution
- Women Transforming India- Breaking the Glass ceiling
- Kingfisher Airlines- Good Times Over
- Do stock markets have any impact on the economy? A case study of India
- SEZ, a case study of Telangana, Orissa and any other state
- Bullet train project- Ahmedabad Mumbai corridor
- Illegal immigrants – hurt or help the economy (ex, take up any state in India which has the highest illegal immigrants)
- Reliance Jio- Changing the game in India’s telecom market
- Bitcoin
- Namami Ganga Yojana
- Commercialisation of ISRO
- Jio- Facebook Deal – Ambani Masterstroke?
- Teacher- Unseen Corona Warrior
- Indian railway on track of Privatisation?
- Lockdown and migrant workers
- Jammu and Kashmir economy after Article 370 Abrogation

	<ul style="list-style-type: none"> • OTT streaming – India world’s fastest growing market • NEP- 2020 comparison with the older ones • Food delivery starts-ups in India (any two Indian start-ups that have made a name for themselves nationwide) • Crude Oil – impact in its price due to worldwide lockdown • Fall in exports and imports due to global shutdown • Economy suffers “ unprecedented collapse” in India due to Covid -19 • Reforms and policies made by NDA government. It’s impact on GDP • Start-ups are rewriting India’s economic roadmap • Impact of US-China trade war on Indian economy • Yes Bank’s problem can have a crippling effect on the Indian economy • Impact of corruption on India’s economic growth • The impact of mergers and acquisition on financial institution in Indian economy <p>India’s population explosion – Will it make or break it’s economy</p>
Physical Education	<p><u>GUIDE LINES:</u></p> <ul style="list-style-type: none"> ➤ The project should be of 15-20 pages A4 size white pages (approx.), ➤ Only hand-written. ➤ Must be added pictures relevant for the topic. ➤ Cover page and index. ➤ Must be submitted in <u>file folders.</u> ➤ Creativity will carry extra marks . <p><u>Instructions :</u> Students need to attempt all topics compulsory given below that can even refer any additional material relevant to the topic.</p> <p style="text-align: center;"><u>ART INTEGRATION</u></p> <p>Your school is hosting CBSE Regional sports meet. Plan and present a Folk Art for the opening ceremony. 10M</p> <p style="text-align: center;"><u>Extension Activity</u></p> <p>Working in a group write a press Release to be issued by your school regarding the District Badminton Championship hosted by your school. 10M</p>
Entrepreneurship	<p style="text-align: center;">PROJECT: (RESEARCH BASED)</p> <p><u>GUIDELINES:</u></p> <ul style="list-style-type: none"> ➤ The project should be 18-20 pages A4 size white pages (approx.), ➤ Cover page and index ➤ Only hand-written. ➤ Must be added pictures relevant for the topic. ➤ Creativity will carry extra marks. ➤ Must submit in file folders. <p><u>Instructions:</u> Students need to attempt <u>ANY TWO</u> topics compulsory given below that can even refer any additional material relevant to the topic.</p> <ol style="list-style-type: none"> 1) EFFECT OF STARTUP BUSINESS IN ENTREPRENEURIAL DEVELOPMENT IN INDIA 2) CO-CREATION FOR VALUE CREATION: A BASIS FOR PRODUCER-CONSUMER SYNERGY

	<div>3) THE IMPACT OF INTRAPRENEURIAL ORGANIZATION ON ORGANIZATIONAL PERFORMANCE</div> <div>4) THE IMPACTS OF MICRO FINANCING ON THE PERFORMANCE OF WOMEN ENTREPRENEURS</div> <div>5) THE CHALLENGES OF HOTEL BUSINESS</div> <div>6) CHALLENGES FACING HANDICRAFT BUSINESSES IN IMPLEMENTING PROMOTION STRATEGIES FOR THEIR PRODUCT.</div>																								
Home Science	<p>Topic: Market survey of any five processed foods, their packaging and label information.</p> <p>Purpose of the Project: This project is intended to familiarise students with the variety of processed foods available in the market, create awareness about the different types of packaging materials used for processed foods and to generate interest in the study of Label Information.</p> <p>Procedure to conduct the project:</p> <p>(A) Visit a market and collect information on the following:</p> <div><div>Cereal Foods like Breakfast foods, noodles ,Atta, etc.</div><div>Diary Products: Milk, Cheese, Butter , Ghee , Ice –Cream etc.</div><div>Preserves: Jams, Pickles, squashes, ketchup, sauces etc.</div><div>Snacks: Chips, Bhujias, Biscuits etc.</div></div> <p>Nutrition Supplements: Complan, Bournvita, Horlicks, Milo, Boost and other branded products.</p> <p>Beverages: fruit juices, carbonated soft drinks, bottled water.</p> <p>NOTE: 2 PRODUCTS IN EACH CATEGORY GIVEN ABOVE.</p> <p>(B) Note the Packaging material used for these products.</p> <p>II. Make a table comparing the types of Packaging materials used for different types of food.</p> <table><tr><th>Name of the product</th><th>Packaging Material used</th><th colspan="6">Label information</th></tr><tr><td></td><td></td><th>Date of Packaging</th><th>Best before date</th><th>Weight</th><th>Certification Mark (AGMARK / FPO / ISI)</th><th>Nutrition Information</th><th>Remarks if any</th></tr><tr><td>Cereal 1.Aashirwad Atta 2.Kellogs Cornflakes</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> <p>The above Tabular format need to be followed.</p> <p>III. From the collected information point out the relative Merits and De-merits of the different packaging materials.</p> <p>THE ABOVE PROJECT NEED TO BE MADE IN A PORTFOLIO STYLE. (ONE IDEA IS REPRESENTED</p>	Name of the product	Packaging Material used	Label information								Date of Packaging	Best before date	Weight	Certification Mark (AGMARK / FPO / ISI)	Nutrition Information	Remarks if any	Cereal 1.Aashirwad Atta 2.Kellogs Cornflakes							
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Cereal 1.Aashirwad Atta 2.Kellogs Cornflakes																									

HERE.)

https://www.youtube.com/watch?v=lnhtm_50Ou4

RUBRICS FOR ASSESMENT OF HOLIDAY HOMEWORK (MAY-2021-2022)

Selection Of The Processed Food Products in each category. (2 in each category mandatory) (3 Marks)	Filling up all the information in tabular format. (4Mark)	Analysing the Merits and De-merits. (2 Marks)	Creativity, Neatness, and Authentication (Picture showing that you are doing this study) Submission On time (1 Marks)
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Total Marks: 10

INSTRUCTIONS:

1. Authentication (Photograph) mandatory
2. Maximum Number of coloured Ruled A4 size paper is 15 pages.
3. Neat Work and Submission on Time
4. The holiday homework needs to be submitted on the school Re-Opening day itself after the Summer Vacation.