



RAJA RAMMOHAN ROY ACADEMY

"Learning, laughter, and lovely summer days!"

**Dear Parents,
Greetings!**

Summer vacation is a wonderful time for children to relax, refresh, and explore new learning experiences. To keep our students engaged in productive and creative activities during the holidays, we have prepared the Summer Holiday Homework.

The homework has been designed to enhance your child's creativity, thinking skills, and subject knowledge in an enjoyable way. We kindly request you to encourage and guide your child to complete the work neatly and sincerely within the given time.

Motivate your child to develop reading habits by encouraging him/her to read books and practice writing daily. Kindly limit excessive screen time and involve your child in creative and outdoor activities. Ensure that your child follows a healthy routine with proper sleep, exercise, and nutritious food.

We hope your child enjoys the holidays while learning something new every day.

Wishing you and your family a happy, safe, and joyful summer vacation!

**Warm regards,
Raja Rammohan Roy Academy**

Raja Ram Mohan Roy Academy Holiday Homework Class XII

English

English Language

Attempt any two of the following topics (in approximately 500 words):

- Write the review of any serial or book that you recently watched/read and enjoyed.
- What are the main challenges in achieving sustainable development in India? How can the concept of sustainable development be applied in your school?
- Write a blog expressing your concern about increase in waste paper in streets, homes, schools, offices and on the roads after an election.

English Literature

Attempt any two of the following questions (Write your answer in about 500 words):

Q1. In Shakespeare's Macbeth, the titular character undergoes a significant transformation throughout the play, shifting from a brave and loyal warrior to a ruthless tyrant. Comment on the evolution of Macbeth's character.

Q2. How does Shakespeare utilize the supernatural elements (specifically the witches' prophecies) to explore the themes of ambition, fate, and the corrupting influence of power in the play?

Q3. Explore the themes of racism and prejudice in Wole Soyinka's 'Telephone Conversation,' analyzing how the use of language and imagery reveal the narrator's experiences and the landlady's discriminatory attitude.

Q4. How does the author invert the conventional symbol of a grandmotherly figure in the short story 'The Cookie Lady', and what does this shift suggest about the nature of exploitation and the desperate desire for youth?

Hindi

- भारतीय संस्कृतत तिश्व की सिवश्रेष्ठ संस्कृततय में से एक है। इस पर अपने तिचार तिखिए। (शब्द सीमा 1000 शब्द, तचत्र सतहत)

2. नागार्जुन का पररचय देते हुए “बादि क तिरते देिा है” कतिता कमाध्यम से तहमािय, कैिाश मानसर िरेकप्राकृततक स ंदयव का िर्वन कीर्तए। (सतचत्र)
3. महादेिी िमाव का र्ीिन पररचय देते हुए “र्ाग तज्जेदूर र्ाना है” कतिता का भािर्व तिखिए तर्ा भखिन पाठकेचार अध्याय का सारांश तिखिए।
4. म हन राकेश एक यजगांतकारी नाटककार रे। इस पर अपने तिचार तिखिए।

Mathematics

CORE MATHEMATICS (SUBJECT CODE 860)

PAPER II PROJECT WORK – 20 Marks

Candidates are expected to have completed any two projects in the same file from the given list of projects.

Mark allocation for each Project [10 marks]:

Overall format 1 mark

Content 4 marks

Findings 2 marks

Viva-voce based on the Project 3 marks

List of suggested assignments for Project Work:

1. Using a graph, demonstrate a function which is one-one but not onto.
2. Using a graph demonstrate a function which is invertible.
3. Draw the graph of $y = \sin^{-1} x$ (or any other inverse trigonometric function), using the graph of $y = \sin x$ (or any other relevant trigonometric function). Demonstrate the concept of mirror line (about $y = x$) and find its domain and range.
4. Explore the principal value of the function $\sin^{-1} x$ (or any other inverse trigonometric function) using a unit circle.
5. Find the derivatives of a determinant of the order of 3×3 and verify the same by other methods.
6. Verify the consistency of the system of three linear equations of two variables and verify the same graphically. Give its geometrical interpretation.
7. For a dependent system (non-homogeneous) of three linear equations of three variables, identify infinite number of solutions.
8. Explain the concepts of increasing and decreasing functions, using geometrical significance of dy/dx . Illustrate with proper examples. 13 ISC Examination Year 2027
9. Explain the geometrical significance of point of inflexion with examples and illustrate it using graphs.
10. Explain and illustrate (with suitable examples) the concept of local maxima and local minima using graph.
11. Explain and illustrate (with suitable examples) the concept of absolute maxima and absolute minima using graph.
12. Explain the conditional probability, the theorem of total probability and the concept of Bayes' theorem with suitable examples.
13. Explain the types of probability distributions and derive mean and variance of binomial probability distribution for a given function.
14. Using any suitable data, find the minimum cost by applying the concept of Transportation problem.
15. Using any suitable data, find the minimum cost and maximum nutritional value by applying the concept of Diet problem.
16. Using any suitable data, find the Optimum cost in the manufacturing problem by formulating a linear programming problem (LPP).
17. Demonstrate application of differential equations to solve a given problem (example, population increase or decrease, bacteria count in a culture, etc.).
18. Using vector algebra, find the area of a parallelogram/triangle. Also, derive the area analytically and verify the same.

19. Using Vector algebra, prove the formulae of properties of triangles (sine/cosine rule, etc.) 20. Using Vector algebra, prove the formulae of compound angles, e.g. $\sin(A + B) = \sin A \cos B + \sin B \cos A$, etc.
21. Find the image of a line with respect to a given plane.
22. Find the distance of a point from a given plane measured parallel to a given line.
23. Find the distance of a point from a line measured parallel to a given plane.
24. Find the area bounded by a parabola and an oblique line.
25. Find the area bounded by a circle and an oblique line.
26. Find the area bounded by an ellipse and an oblique line.
27. Find the area bounded by a circle and a circle.
28. Find the area bounded by a parabola and a parabola.
29. Find the area bounded by a circle and a parabola. (Any other pair of curves which are specified in the syllabus may also be taken.)
30. Analyse - Three methods (proofs) to find the area under the curve.
31. Tessellation:
Types of tessellations, Geometrical shape of tessellation, Tessellation in nature, Man made tessellation, application in real life situation.
32. Scared Geometry and Euclid geometry comparison and different approach (Mathematically)
33. Derivation of and its applications.
34. Differentiation – instantaneous rate of change of displacement, why not rate of change of one variable with reference to other variable.
35. Derivation of determinant.

NOTE:

Please follow the guidelines below for your project :-

1. Project report should be approximately 30 to 35 pages covering the topic chosen by you.
2. Project report should contain relevant diagrams and figures wherever required.
3. The useful information can be collected from your prescribed book, reference books or from the internet.
4. Project report should have: -
 - (a). Acknowledgement,
 - (b). Introduction,
 - (c). Content
 - (d). Findings
 - (e). Bibliography.

APPLIED MATHEMATICS (SUBJECT CODE

885) PAPER II PROJECT WORK – 20 Marks

Candidates are expected to have completed any two projects in the same file from the given list of projects.

Mark allocation for each Project [10 marks]:

Overall format 1 mark

Content 4 marks

Findings 2 marks

Viva-voce based on the Project 3 marks

List of suggested assignments for Project Work:

1. Using a graph, demonstrate a function which is one-one but not onto.
2. Using a graph demonstrate a function which is invertible.
3. Draw the graph of $y = \sin^{-1} x$ (or any other inverse trigonometric function), using the graph of $y = \sin x$ (or any other relevant trigonometric function). Demonstrate the concept of mirror line (about $y = x$) and find its domain and range.
4. Explore the principal value of the function $\sin^{-1} x$ (or any other inverse trigonometric function) using a unit circle.
5. Find the derivatives of a determinant of the order of 3×3 and verify the same by other methods.
6. Verify the consistency of the system of three linear equations of two variables and verify the same graphically. Give its geometrical interpretation.
7. For a dependent system (non-homogeneous) of three linear equations of three variables, identify infinite number of solutions.

8. Explain the concepts of increasing and decreasing functions, using geometrical significance of dy/dx . Illustrate with proper examples.
9. Explain the geometrical significance of point of inflexion with examples and illustrate it using graphs.
10. Explain and illustrate (with suitable examples) the concept of local maxima and local minima using graph.
- 14 ISC Examination Year 2027
11. Explain and illustrate (with suitable examples) the concept of absolute maxima and absolute minima using graph.
12. Explain the conditional probability, the theorem of total probability and the concept of Bayes' theorem with suitable examples.
13. Explain the types of probability distributions and derive mean and variance of binomial probability distribution for a given function.
14. Using any suitable data, find the minimum cost by applying the concept of Transportation problem.
15. Using any suitable data, find the minimum cost and maximum nutritional value by applying the concept of Diet problem.
16. Using any suitable data, find the Optimum cost in the manufacturing problem by formulating a linear programming problem (LPP).
17. Demonstrate application of differential equations to solve a given problem (example, population increase or decrease, bacteria count in a culture, etc.).
18. Draw a rough sketch of Cost (C), Average Cost (AC) and Marginal Cost (MC) Or Revenue (R), Average Revenue (AR) and Marginal Revenue (MR). Give their mathematical interpretation using the concept of increasing - decreasing functions and maxima-minima.
19. For a given data, find regression equations by the method of least squares. Also find angles between regression lines.
20. Draw the scatter diagram for a given data. Use it to draw the lines of best fit and estimate the value of Y when X is given and vice-versa.
21. Different methods to calculate depreciation. Main inputs to calculate depreciation. Linear or straight line method to find depreciation with a suitable real life example.
22. Stock price movement.
23. Predicting stock market crash.
24. Risk assessment of insurance firm from data.
25. Identify the purchasing power using the concept of cost of living index number.
26. Identify the purchasing power using the concept of weighted aggregate price index number.
27. Calculate moving averages with the given even Periodicity. Plot them and as well as the original data on the same graph.
28. Real life application of Binomial distribution, Poisson and Normal distribution in the field of medical, games, banking, election result etc.
29. Applications of Sequence and series in Banking and Finance.

NOTE:

Please follow the guidelines below for your project : -

1. Project report should be approximately 30 to 35 pages covering the topic chosen by you.
2. Project report should contain relevant diagrams and figures wherever required.
3. The useful information can be collected from your prescribed book, reference books or from the internet.
4. Project report should have: -
 - (a). Acknowledgement,
 - (b). Introduction,
 - (c). Content
 - (d). Findings
 - (e). Bibliography.

Physics

Prepare a project report on any one of the following topics:

1. Capacitor & Dielectric
2. Current Electricity

3. Magnetic Effect of Current
4. Alternating Current
5. Semi-Conductor Devices
6. Photoelectric Effect
7. Structure of Atom & Bohr's Atomic Theory
8. Interference & Diffraction of Light
9. Optical Instruments
10. Electromagnetic Spectrum
11. Electromagnetic Induction
12. Nuclear Physics
13. Magnetism & Magnetic Classification of Substances

Guidelines:

- Project should be approximately 25–30 pages.
- Include diagrams and figures wherever required.
- Include Acknowledgement, Introduction, Content and Bibliography.

Biology

Make a project on any one of the topics given below.

The suggested evaluation criteria for project work will be Introduction/

Purpose

Contents

Bibliography

The suggested list for the projects is: -

1. Mendelian Genetics
2. Drug addiction
3. Cancer
4. Hepatitis
5. Population interactions
6. Genetic disorders
7. D.N.A fingerprinting
8. Microbes in industrial use 9. Biotechnology

10. Ecological services

Chemistry

Holiday Homework Chemistry

A. Make a project for ISC Board Evaluation on any one topic already allotted.

1. Amino acids: Peptides, structure and classification, proteins structure and their role in the growth of living beings.

2. Nucleic Acid: DNA and RNA – their structure.

Unique nature. Importance in evolution and their characteristic features

3. Carbohydrates and their metabolism, Blood - haemoglobin and respiration.

4. Vitamins and hormones

5. Simple idea of chemical evolution.

6. Natural polymers (any five) - structure, characteristics, uses. Synthetic polymers (any five) - method of preparation, structure, characteristics and uses.

7. Types of Dyes - methods of preparation, characteristics and uses.

8. Chemicals in medicines: antiseptics, antibiotics, antacids, etc. and their uses.

9 Preparation of soap, nail polish, boot polish, varnish, nail polish remover, shampoo and perfumes.

10. Chemicals and chemical processes in forensic studies.

11. Insecticides, pesticides and chemical fertilisers.

12. Ancient Indian medicines and medicinal plants.
 13. Organic Chemistry in Nutrition, Food Science and Biotechnology.
 14. Effect of Green House Gases.
 15. How Plastics have changed the world, both socially and economically.
- B. Prepare all the Chapters taught and practice their ISC questions.

Accountancy

Candidates will be required to do a minimum of two assignments.

Suggested list of assignments:

1. Preparation of Journal / sub-division of journal, Ledger, Trial balance and Financial Statements of a partnership form of business on the basis of a case study.

- Develop a case study showing how two or more friends decide to come together and start a business with a certain amount of capital.
- Prepare their Partnership Deed including interest on capital, partner's salary, commission, interest on drawings, interest on partner's loan and rent paid to a partner.
- Write in detail, their transactions during the year: purchases - cash and credit, sales - cash and credit, expenses, purchase of fixed assets and depreciation charged on them, any outstanding expenses, prepaid expenses, accrued income, drawing bills of exchange, accepting bills payable etc.
- From this case study developed (which should have at least 15 transactions), pass the journal entries, post them into the ledger, prepare a Trial Balance and the Trading and Profit and Loss Account, Profit and Loss Appropriation Account and Balance Sheet.
- The various expenses, for comparison purposes, could be depicted in the form of bar diagrams and pie charts.
- Calculate relevant accounting ratios like liquidity, solvency, activity and profitability giving their formulae and computation (all this could be part of the viva-voce).
- The ratios could also be shown graphically and/ or pictorially (bar diagrams and pie charts) and if possible, could be compared with the ratios of the industry.

2. Preparation of a Cash Flow Statement with the help of audited / unaudited / imaginary Balance Sheets of a company for two consecutive accounting years or two consecutive quarters of an accounting year could be taken along with at

least five additional information (depreciation, purchase/ sale of fixed assets, dividend paid/ proposed, tax paid/ proposed, amortization of intangible assets, profit or loss on sale of fixed assets including provision for depreciation on them and profit or loss on sale of investment).

- The results of the operating, investing and financing activities could be shown graphically and/ or pictorially (bar diagrams and pie charts).

3. Preparation of Common Size and Comparative Income Statement and Balance Sheet of a company by taking into account its audited, unaudited / imaginary financial results of two consecutive quarters of an accounting year or of two consecutive accounting years.

- The comparison has to be made in the form of Common Size and Comparative Income Statement and Balance Sheet.
- The comparison could also be shown graphically and/ or pictorially (bar diagrams and pie charts).

4. Taking the audited/ unaudited / imaginary financial results of any leading company, its liquidity, solvency, activity and profitability ratios of two consecutive accounting years or of two consecutive quarters of an accounting year should be calculated and the comparison of the ratios of both the years or quarters should be shown graphically and/ or pictorially (bar diagrams and pie charts).

GENERAL INSTRUCTIONS:

- 1) Both the projects to be done in the same project file.
- 2) The project work has to be supported with recent data and pictures
- 3) The project should be done independently.
- 4) The project should be neatly done on Interleaf project papers and in good handwriting. Each project should be of around 20-30 pages, which means the whole project work should be of 40-50 pages.
- 5) Follow the given sequence for the project- i) Acknowledgement, ii) Certificate, iii) Index, iv) Content and v) Bibliography

Economics

Subject: Economics

Project/ Assignment

Class XII

A list of suggested Projects is given below, prepare project on any two topics

1. Study a Public Sector Enterprise with reference to its relevance to the Indian Economy and its future prospects. Analyse the trend of its growth for the last ten years.
2. Conduct a Socio-Economic survey of a locality (minimum sample size should be 30 households) with reference to:
 - (a) Demographic features.
 - (b) Consumption Pattern Expenditure on necessities, comforts and luxuries.
 - (c) Occupational structure.
3. Compare the contribution made by different sectors of the economy towards GDP growth during the planning period.
4. Prepare a report on the competition in the Aviation Sector in India with reference to:
 - (a) Performance of the Public Sector and Private Sector.
 - (b) Operational strategies adopted by budget/low cost carriers.
5. Make a comparative analysis of lending performance of five Commercial Banks in the past six years with reference to the changing
CRR and SLR.
6. Many thinkers believe that we are rapidly
depleting our natural resources. Assume that there
are only two inputs (labour and natural resources)
producing two goods (wheat and gasoline) with no
improvement in technology over time. Show what
would happen to the Production Possibility Curve
over time as natural resources are exhausted. How
would invention and technological improvement
modify your answer? On the basis of this example,
explain why it is said "economic growth is a race
between depletion and invention."
7. Make a comparative study of the allocation of

financial resources of the Central Government
Budget on Agriculture, Defence, Industry and
Education in the last ten years. Prepare a report on
your observations.

8. Prepare a trend Analysis of Growth and Productivity of any one industry such as:
Textile Automobiles / Electronic and
Tele-communication, etc. in India for the past ten
years.

9 Money

10 Banking

11 Fiscal policy

12 Demand and elasticity of demand

13 Balance of payment

Commerce

Prepare a project file covering any two topics suggested by the council. A list of suggested
Projects is given below:

1. Compare marketing strategies adopted by two
different companies of the same industry
(FMCG / Telecommunication / media /
education industry etc.) keeping in mind the
following:

- Product mix
- Price Mix
- Place Mix
- Promotion Mix

2. Collect newspaper/magazine clippings of five

cases filed by consumers in the Consumer Court.

Find out the rights violated, and the redressal mechanism used.

What was the outcome of each case?

3. Visit a commercial Bank. Find out the procedure to open a savings account. Find out the details of various Agency & General utility services provided by the bank.

4. Compare the interest rates offered by five different commercial banks on fixed deposits under various categories (general and senior citizens) and various time durations.

Find out the procedure and formalities for opening a fixed deposit account.

What is the procedure for closing the account on maturity and before maturity period?

5. Select five different companies across varying industries such as I.T., textiles, FMCG, Health Care, etc., included in the SENSEX. Keeping a hypothetical base money of Rupees One Lakh, invest in the shares of the selected companies. The movement of share prices selected by you should be monitored over a period of one month on a daily basis. A uniform / standard practice of either using the opening price or the

closing price on a particular day of the week should be used by all students in the class.

At the end of the month, analyse your investment in a spread sheet and give reasons for your choice of scripts.

6. Find out the names of companies under various sectors (FMCG, Pharma, automobile, etc) included in the NIFTY and the SENSEX.

Make a chart of the same and track its movements over a period of one week.

7. (a) Study the sources of recruitment and steps involved in the selection procedure adopted by two companies of the same industry.

(b) Compare and evaluate the sources of recruitment and the selection process adopted by the selected companies.

8. Formulate a capital plan for a hypothetical business organization.

Justify your formulated plan.

9. Choose two companies of the same industry.

Study their organizational structure. Also give information with regard to:

(i) Hierarchy

(ii) Centralization and delegation of authority

(iii) Flow of information (scalar chain)

(iv) Span of control

(v) Channel of communication.

10. Select any business undertaking. Study the selected business in terms of ownership, capital and profitability.

Make a S.W.O.T. analysis and present it in a tabular form.

History

Summer Assignment

Subject History

Prepare an assignment on any one of the following topics as per the prescribed guidelines of the ISC

1) Books that have had a profound effect on the course of society.

2) Wars--contributions of Indian soldiers to the world wars, role of colonial armies in the world wars, guerrilla wars(e.g.Vietnam war)

3) UN peacekeeping actions and weaknesses

4) Growth of Feminist Movements in India or the West

Political Science

Prepare any one project suggested in the ISC Political Science textbook.

Physical Education

Make a project file on Volleyball and Football.

The project must contain at least 20 pages per game.

Computer Science

Numbers

1. Prime Palindrome numbers
2. Circular Prime number
3. Automorphic numbers
4. Magic numbers
5. Harshad numbers/Niven numbers
6. Kaprekar numbers
7. Goldbach numbers
8. Pronic numbers/Heteromecic number
9. Smith numbers
10. Evil number

Matrix

1. Sort each row in ascending or descending order
2. Sort each column in ascending or descending order
3. Display the sum of the left or right diagonal of a matrix
4. Find and display the sum of all boundary elements
5. Find and display the sum of non boundary elements
6. Find and display the sum of each row
7. Find and display the sum of each column
8. Check if the given matrix is symmetric or not
9. Rotate the matrix 90° clockwise and display
10. Sort the non-boundary elements in ascending order
11. Display only the boundary or non-boundary or diagonal elements of a matrix
Display the maximum and minimum element in the matrix along with its position
12. Sort the elements of the matrix in ascending order and rearrange them in the matrix
13. Display the transpose of a matrix

String

1. Accept a string and count the number of uppercase character, lower case characters and number of vowels
2. Count and display the frequency of a word in a sentence
3. Count and display the frequency of each character present in the string
4. Accept a string and display all the words present in the string in PigLatin form
5. Caesar Cipher encryption technique
6. Accept two words and check whether they are Anagram or not
7. Accept a sentence. Find the potential strength of each word in the sentence and display the sentence by arranging the words in ascending order of their potential strength.
8. Accept a sentence and a word from the user, which is a part of the sentence along with its position and delete the word and display the sentence
9. Accept a sentence and rearrange the sentence in alphabetical order of words

Home Science

1. Select any three states in India and study they are traditional waves , prints, origin characteristics, thread ,colour ,fabric ,stitches motifs, products and costume prepare a report on the same.
2. Designer develop suitable labels for the food items.
3. Opening a bank account, filling a cheques,deposit slips, withdrawal slips and demand draft form.
4. Plan recipes according to the occasion - special occasion, packed meals and therapeutic diets.

PSYCHOLOGY

1. Topic: Attitudes
2. Make a project file conducting a psychological study on the following topic:
3. "To Study Attitudinal Differences Regarding Marriage among Boys and Girls of the Same Age Group (20–30 years)"
4. The project should include:
5. 1. Aim of the Study
6. 2. Basic Concepts
7. * Definition of Attitude and Marriage
8. * Related Theories and concepts of attitude
9. * Hypothesis: "Girls will have a more favourable attitude towards marriage."

10. 1. Method
11. * Sample of the Study: 20 participants (10 Boys,10 Girls)
12. * Identification of Variables: Independent Variable: Gender (Boys and Girls)
13. Dependent Variable: Attitude towards Marriage
14. * Procedure Followed: Construct and administer a 5-point attitude scale with positively and negatively worded statements.
15. * Data Collection: Questionnaires to be given to 10 boys and 10 girls and responses later scored and tabulated.
16. * Statistical Treatment of Data: Calculate and compare the mean scores of both groups.
17. 1. Results and Discussion: Include graphical representation of the findings.
18. 2. Conclusion: Hypothesis accepted or rejected

SUPW

For A & B:

Choose any one:

- Fabric Block Printing
- Lippan Art
- Glass Painting

For C & D:

Topic: “Framing Nature: A Study of Photography as a Tool for Interior Decoration using Natural Wood”

Aim: To capture and frame a nature photograph in 12 x 12 inches using natural wood for framing.

Art

Create a beautiful painting on a full chart paper size sheet based on the Indian Artist printout design provided to you

Complete your artwork neatly with proper colouring, detailing, and creative presentation to make it attractive and impressive. Your painting must be properly framed or well-mounted and submitted after the holidays with your name and class written clearly on the back.