



Sanskriti KMV SCHOOL

Session 2026-27

Summer Break Assignments

Grade-XII Humanities

"Summertime offers the perfect pause to rejuvenate the body, mind, and spirit."

Dear Parents,

The summer vacation is a cherished opportunity to pause, reconnect with loved ones, and invest time in meaningful and enjoyable pursuits. To make this interval both enriching and engaging, we have curated a collection of experiential learning tasks aimed at promoting creativity, responsibility, and joyful exploration.

As the students unwind and recharge, we request your support in ensuring that this break is spent in a productive and wholesome manner. A few essential guidelines are as follows:

- All assignments must be completed with sincerity and submitted promptly after the vacation. Kindly ensure the work is neatly arranged in a well-labelled folder with the student's name, father's name, class, and section.
- Promote daily physical activity by encouraging your child to follow a simple fitness routine and adopt healthy eating habits.
- Engage your child in basic household tasks to instil a sense of cooperation and independence.
- Limit screen time and create opportunities for heartfelt conversations and bonding, especially with grandparents.
- Maintain a creative journal capturing memorable outings, celebrations, or simple joyful moments, accompanied by photographs.
- Let us work together to make this summer a season of discovery, joy, and meaningful learning.

"Wishing you a refreshing, safe, and sunshine-filled holiday season!"

HAPPY HOLIDAYS



ENGLISH

1. PROJECT FILE

Guidelines

o It is compulsory for all students to prepare the Project File for Internal Assessment.

o The assessment will include:

Project File – 5 Marks

Viva – 5 Marks

The project should be handwritten in about 800–1000 words.

Use A4 size white sheets and get the file spiral bound.

Cover Page, Acknowledgement and Certificate may be printed, but the remaining work should be handwritten neatly.

Paste pictures, charts and graphs on the left side and write the content on the right side. Students should collect information through surveys, interviews, questionnaires, articles and case studies.

At least 10 people should be interviewed and a questionnaire of 15 questions should be prepared.

Attach photographs, questionnaire and other evidences at the end of the file.

Suggested Topics for Grade XII

- Importance of Time Management in Student Life
 - Linguistic Chauvinism and Importance of Mother Tongue
 - Fear, Phobias and Ways to Overcome Them
 - Stress, Anxiety and Mental Health among Students
 - Environmental Degradation and Conservation
 - Meditation and Importance of Self-Introspection
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- Importance of Parents and Care for Elders
 - Condition of Old Age Homes in India
 - Freedom Movements of India and Contributions of Freedom Fighters
 - Importance of Nature and Mental Peace
 - Disability and Inclusion in Society
 - Society's Attitude Towards Disabled People
 - Life in Slums and Child Labour
 - Education for Underprivileged Children
 - Role of Youth in Upliftment of Society

- War, Peace and Their Impact on Society
- Crime and Criminal Behaviour in Society
- Condition of Farmers in India
- Or Any Contemporary Topic

Project File Layout

- Cover Page
- Objective / Purpose
- Certificate
- Action Plan
- Introduction
- Main Content (Survey, Interview, Questionnaire, Case Study, Articles, Graphs, Pictures)
- Handwritten Report / Essay (800–1000 words)
- Student Reflection (100–150 words)
- Photographs / Evidence
- Bibliography / Resources

Parameters of Assessment

- Quality of Content
- Accuracy of Information
- Creativity and Presentation
- Grammar and Spellings
- Clarity of Ideas
- Timely Submission
- Participation and Effort
- Knowledge and Understanding

Q2. Activities

a. You are Rohan living in Punjab. Write an invitation to your friend living in Odisha to spend his summer vacations with you.

b. Write a notice informing the students of class 9 to 12 about the school trip to Odisha that your school cultural society is organising during the summer vacation.

Q3. Self Expression Activity

a) Motivational Speech

Prepare a 3–4 minute speech on topics like:

Never Give Up

Importance of Discipline

Power of Positivity

Success Through Hard Work

b)Any Book or Movie Review

Present:

summary

favourite character

moral/message

personal opinion

POLITICAL SCIENCE

I. PROJECTS FOR PRACTICAL

1. Challenges of Nation Building
2. Parties and Party politics in India
3. India's External Relations
4. Politics of Planned Development
5. Recent Developments in Indian Politics
6. End of Bipolarity
7. Contemporary centres of Power
8. Contemporary South Asia
9. International Organizations
10. Security in the Contemporary World
11. Environment and Natural Resources
12. Globalisation

Choose any one topic from the above mentioned list and prepare a detailed project.

Criteria for Assessment as per CBSE Norms:

A. Project File

Introduction/ Overview – 2 Marks

Variety of Contents – 3 Marks

Presentation - 3 Marks

Conclusion – 1 Mark

Bibliography - 1 Mark

B. Viva – Based on Project - 10 Marks

Guidelines to be followed:

- Length of the Project(25-30 pages)
- Paste colourful pictures to support your content
- Content must be informative and relevant
- File must be neat and presentable
- Submission will be done in the month of August

II. Make a PPT on any one topic from the given below list:

1. Comparison of Electoral History of Punjab and Odisha
2. Comparison of Punjab and Odisha on the grounds of culture, language and literature
3. Comparison of Geographical features of Punjab and Odisha

Mention your Name, Roll Number And Class on the PPT and share it on skmvarts1@gmail.com till 15th of July.

SOCIOLOGY

I. PROJECT WORK

Prepare a Project File on any one of the following topics:

1. Healthcare Challenges in India
2. Urbanization and it's Social Impact
3. Impact of Technology on Society
4. Gender Inequality and Women's Rights
5. Challenges to Transgenders in India
6. Reservation of Women in Politics
7. Female Entrepreneurs in India
8. Role of Politics in Development

9. Women's Rights Movements
10. Role of family in shaping values
11. Effects of Over-population
12. Gender Inequality in the workplace
13. Social Movements and Activism
14. Youth Perspectives on Religion and Tradition
15. Religion's Impact on Politics
16. Changing trends in the institution of Marriage
17. Social Media and Public Opinion
18. Violence against women
19. Social Movements
20. Role of social movements in social change
21. Impact of Globalisation on rural economy
22. Impact of immigration in urban communities
23. Population Problem in India
24. Poverty in India
25. Women rights and movements
26. Workplace problems for women in India
27. Role of religion in today's society
28. Social media impact on relationships

II. 'India is socially and culturally one of the most diverse countries of the world.'

Collect information about the cultural diversity of Punjab and Odisha. (Poster/Collage/pppt).

III. Write down the NCERT questions and answers of Chapter-5

Patterns of Social Inequality and Exclusion AND Chapter 6 'The Challenges of Cultural Diversity' in your notebook.

PSYCHOLOGY

TASK 1

Case Study

Development of case profile: Using appropriate methods like interview, observation & psychological tests.

Prepare a case study on the topic of your choice.(refer chapter 4.Psychological disorders). Case study is an in depth analysis of a person. You are required to choose a person on whom you want to do your case study and who is willing to cooperate.

File should consist of:

1. **Cover page**
2. **Title page** (Objective of your case profile)
3. **Certificate**
4. **Acknowledgement**
5. **Rationale** (Reason for choosing the particular topic)
6. **Introduction to Case Study** (heading)
 - Explain Case Study Method; Advantages and Disadvantages of this Method.
7. **About the topic**
 - Somebody unfamiliar with your topic should have a good idea of what it's about having read this.
 - Write all the possible information about your topic.
 - For e.g. if your topic is about depression, this should include:
 - What is Depression?
 - Types of Depression
 - Signs and Symptoms
 - Risk factors
 - Prognosis
 - Treatment etc..
 - A detail of your project covering the theories, research, studies, experiments. The format of his section is totally up to you. Always remember when we are writing about a topic we first have to describe, define the meaning of it. Relate some relevant researchers studied that you can easily find in your textbooks or on the internet.
 - I would suggest you to use pictures, stories, case studies, famous instances, news articles, editorial cuttings anything that is relevant to your topic. Psychology can be related and can be located in our daily life. The project should be as interactive and interesting to the reader.

- Originality, innovative thinking, and practicality will be appreciated

8. Method of Research

- Write all possible methods of research in detail that can be included in a case profile like observation, interview, survey, psychological tests.
- In the end write a paragraph stating the methods that you have used in your case profile.

9. Detailed Case Profile

a. Subject Profile

Name _____
Age _____
Class _____
Occupation _____
Education qualification _____
Chief complaint _____
(You can more details on your own)

b. Background Information

Introduce your subject here. This must be written in a paragraph form. Mention some basic information about the subject

c. Case Analysis

- Relating to birth
- Relating to development
- Relating to family
- Relating to socio-economic condition
- Relating to physical and mental fitness
- Relating to emotionality and aggression
- Relating to personality adjustment
- Relating to hostility

(Add topics)

- Relationship with family members
- Relationship with peers
- Educational history

d. Psychological tests/ Tools used to collect data

- You can choose one or more tests and conduct them on your subject.
- Kindly check the reliability, validity, and norms of the tests.

e. Interviews

Interview sessions need to be conducted with your subject. Setup a convenient time suitable for both of you. Interview sessions can be a combination of

structured or unstructured. Keep the interview sessions flexible and free flowing. Minimum of 5-6 sessions should be conducted

Interview work will be written theme based under case analysis.

f. **Observation**

Here you will include your observations about your subject. both verbal and nonverbal behaviours. While interviewing your subject be alert and observe the following things - i.e. The room setup, the body language, behaviour with you, eye contact, way to talking to the parent, comfort level, hand movements etc.

g. **Challenges faced by the subject (1-2 pages)**

Here you can include the day to day issues your subject is facing. for example, if it is a student's exam stress, family issues, time management, peer pressure. If it is an adult. financial management, time management, family issues. Etc. The challenges can be big or small depending on your case.

Write in point form.

h. **Possible interventions (1-2 pages)**

Based on the challenges faced by your subject write possible suggestions that you can provide to your subject. You can refer your textbook also for the same.

Write in point form.

10. **Conclusion**

The project's conclusions should list the things which have been learnt as a result of the work you have done.

Your findings and experiences during the work can also be included here.

11. **References**

Always mention the source from where you extract information in the correct format. This consists of a list of all the books, articles, manuals etc. used in the project and referred to in the report.

- **Web Resources for assistance**

<https://youtu.be/FYtoac9Se54?si=RM34shlPlqUOZUA6>

The file should be well made and decorated.

TASK 2

STUDENTS MUST WATCH ANY **TWO** MOVIES AND RELATE THEM TO PSYCHOLOGICAL DISORDERS.

List of the movies that are related with the Mental Health problems.

1. Uda Punjab (Hindi) -Substance Abuse
2. 15 Park Avenue – Schizophrenia
3. Matchstick Men- OCD (Obsessive Compulsive Disorder)
4. Kartik Calling Kartik – Schizophrenia
5. Barfi (Hindi)- Autism
6. Tarre Zameen par (Hindi) –Learning Disabilities
7. Tannu Weds Mannu Returns - Anxiety & Bipolar Disorder
8. A Beautiful mind – Schizophrenia
9. Silver Linings Playbook- Borderline Personality Disorder
10. Colossal- Substance Use Disorder
11. Joker: *Folie a Deux* (2024)- Psychotic Disorder
12. Split- Associative Identity Disorder
13. Filth- Borderline Personality Disorder
14. Phobia- Agoraphobia
15. Good Will Hunting PTSD and Attachment Disorder
16. Dear Zindagi - Anxiety & Counselling
17. It's Kind Of a Funny Story - Depression
18. The Skeleton Twins- Depression
19. Bhool Bhulaiya- Dissociative Identity Disorder
20. Me, Myself, & Irene- Dissociative Identity Disorder
21. The King of Staten Island – Depression and Bipolar Disorder
22. Tamasha- Borderline Personality Disorder
23. Anjaana Anjaani- Depression and Suicidal Tendency
24. Heroine- Bipolar Mood Disorders
25. To the Bone- Anorexia Nervosa
26. The Disaster Artist- Delusion of Grandiosity
27. Horse Girl- Paranoid Delusions
28. Black- Alzheimer Disease
29. My name is Khan- Autism Spectrum Disorder- Asperger's Syndrome
30. Devdas- Major Depressive Disorder with Alcoholism

Attempt these five questions for each movie:

- A. Who was the main character in the movie?
- B. What was the disorder the movie tried to explain and relate with the criteria (DSM-V and ICD-10)?
- C. Explain the causes and the symptoms of disorder?
- D. Explain the possible treatment for related disorder?
- E. What will be prognosis of the disorder?

(Refer – NCERT TEXTBOOK FOR CLASS XII and DSM-V for the same)

TASK 3

ART INTEGRATION

1. Prepare an art piece to facilitate art therapy to treat the psychological disorder as mindful involvement of overcoming the disorder.
 - LIPPAN ART
 - MANDALA ART
 - MOSAIC ART
 - SKETCHING
 - PAINTING
2. Use ivory sheets and MDF boards to create your art piece.
3. Write a report on the art therapy you have used with step integration. Also illustrate the meaning and aim of that therapy.
4. Do this report writing on A4 size sheets in a file.

NOTE: Do all the tasks Creatively and innovatively using your incredible thoughts and idea.

ECONOMICS

Topic : Environment and Sustainable development



Read the Chapter Environment and Sustainable Development from Indian Economic Development book and do the following question on ruled sheet.

Define the following terms:

1. Environment
2. Carrying capacity of environment
3. Absorptive capacity of environment
4. Environmental Degradation
5. Sustainable development

Answer the following questions:

1. State and discuss any two strategy involved in attaining sustainable development in India. (3)
2. Discuss the long term implication of increase in demand for environmental resources exceeding their natural regenerative capacity. (3)
3. If nation fails to enforce the regulation of Montreal Protocol the likely long term environmental and biological consequences of this will be _____ (1)
 - (i) Rapid deforestation
 - (ii) Increase possibility of skin cancer

- (iii) Green house effect causing rise in global temperature
- (iv) Possibility of acid rain

Options:

- (a) Only (i)
- (b) (ii), (iii) , (iv)
- (c) (i) and (iv)
- (d) (i) and (iii)

4. Study the following image carefully:



Interpret the given image and comment upon the phenomenon of environmental crisis as a result of changed production and consumption patterns. (4)

5. Mention any two factors which challenged the carrying capacity of the environment. (2)

6. State the meaning of Economic growth and zero emission? (1)

Topic : Comparative development experience of India , China and Pakistan

DEVELOPMENT EXPERIENCES OF INDIA: A COMPARISON WITH NEIGHBOURS



Read the Chapter Comparative Developmental Experience of India , China and Pakistan from Indian Economic Development book and do the following question on ruled sheet.

1. State meaning of 'Commune System'. (1)
2. "In late 1970's China's population growth rate has sharply declined as compared to India". Elucidate the reasons and impacts of this situation. (3)
3. "At the time of independence both India and Pakistan inherited similar colonial economic structure. Both the nation adopted similar economic planning strategies". Explain any two such similarities in developmental path of India and Pakistan. (4)
4. "In 1958 China launched the Great Leap Forward (GLF) campaign with a definite aim".
 - (i) State the rationale behind the introduction of GLF campaign. (2)
 - (ii) State any two failure of Great Leap Forward campaign. (2)
5. On the basis of the given data comment upon the annual growth of Gross Domestic Product (GDP) of India and China.

Annual Growth of GDP (%) 1980 - 2017			
Country	1980-90	2015-17	2022
India	5.7	7.3	7.0
China	10.3	6.8	3.0
Pakistan	6.3	5.3	4.8

PROJECT WORK CLASS XII ECONOMICS

(FOR FINAL TERM)

Dear Student

Make Economic Project file as per the assigned topic and following instructions given.

Steps towards making project:

- Cover page
- Acknowledgement
- Certificate
- Index
- Introduction
- Objective
- Identify cause, consequences and remedies
- Impact on Indian Economy
- Factors effecting
- Analysis
- Conclusion
- Bibliography

Guidelines:

1. Coloured thick A4 sheets to be used.
 2. Minimum pages 25 (From Introduction to conclusion)
 3. Spiral binding
 4. Use Blue pen
 5. Must include latest data, pictures or graphs
 6. Project file content should be written in your own handwriting
 7. File should be Neat and presentable
- **Last date of submission is 1st November 2026**

LEGAL STUDIES

I. PROJECT on 'Understanding Case Laws'

METHODOLOGY:- 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.

II. ASSIGNMENT(To be done in Legal Studies Notebook)

1. Mr Ram is a music composer and works in the XYZ company. Mr Ravi is a new composer in the music industry and he always tries to copy Ram in the music composition. He launched one song which is composed by Ram. He took every credit for his song. When this situation arises for the Ram then what should Ram do in this situation? How should Ram safeguard his rights with the help of IPR and what penalty will be imposed on Ravi for this offence?

2. Mr X purchased his shoes from the Yikee company. After some days Mr. Y's showroom launched the Nikee name shoe brand. And Mr X noticed that the trademark which is used by the Nikee company arrow Mark is similar to the Yikee company. After that, Mr X complained about this situation in the Yikee Company.

A. Explain in this situation what will the Yikee company do.

What are the remedies available to the Yikee company in the infringement of a trademark?

B. Which type of punishment is given to the accused for such acts?

3. Varsha, a law graduate who completed law from India, wants to practice law in New York. Advise her on the procedure to be followed in order to be eligible for practicing in New York.

4. Rajiv recently learned about IPR. He owns a business which makes custom-made gifting items. His work, ideas can be easily copied. He also has a few partners in his business who are not very loyal. So, he has decided to put his knowledge of IPR into action and protect his business. What rights will Rajiv have through IPR? Explain the advantages of IPR.

5. A company brings out an orange cola in the market that is packaged in a bottle identical to the Cip-Kola bottle.

i. Which form of Intellectual Property would protect Cip-Kola's interests?

ii. What is the law governing the said protection in India?

iii. What are the characteristics of this type of Intellectual Property?

6. ASSERTION AND REASON QUESTIONS:

a. Assertion (A): False imprisonment is unlawful restraint of a person's liberty.

Reason(R) : Total restraint of liberty is essential for false imprisonment.

b. Assertion (A): Defamation is injury to reputation.

Reason (R) : Libel is spoken defamation while slander is written defamation.

c. Assertion (A): Nuisance is unlawful interference with a person's use of land.

Reason(R) : Public nuisance affects the general public or a class of persons.

d. Assertion (A): Strict liability was established in Rylands v. Fletcher.

Reason(R) : Under strict liability, liability arises even without negligence.

e. Assertion (A): Absolute liability was established in MC Mehta v. Union of India.

Reason(R) : Absolute liability has no exceptions unlike strict liability.

8. Compare the crime rate and legal issues of Punjab and Odisha.

MUSIC

Project File

* Raag Bhairav and Bageshwari (Introduction and notation)

* Introduction and notation of Rupak taal and Jhaptaal along with Ekgun , dugun ,tigon and chaugun.

DANCE

Prepare your dance file according to topics given below:

1. Introduction of dance
2. Brief history of all 8 classical dances
3. Gharanas of Kathak
4. Ras
5. Bhava
6. Laya
7. Folk dances of India
8. Taal- Teentaal, Dadra, Kaharva, Jhaptaal, Rupak and Dhamar taal.
9. Life sketches of few Kathak legends (Birju Maharaj, Kundanlal, Gangnani, Sitara Devi).

(Paste suitable pictures and make your file decorative.)

APPLIED MATHEMATICS

- **Solve the questions on loose sheets and submit in a folder.**

PRACTICE QUESTIONS

Q1.

If $3A - B = \begin{bmatrix} 5 & 0 \\ 1 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 4 & 3 \\ 2 & 5 \end{bmatrix}$ then find the value of matrix A.

Q2. Find the value of x- y if

$$2 \begin{bmatrix} 1 & 3 \\ 0 & x \end{bmatrix} + \begin{bmatrix} y & 0 \\ 1 & 2 \end{bmatrix} = \begin{bmatrix} 5 & 6 \\ 1 & 8 \end{bmatrix}$$

Q3. Find the value of 'x'

$$[2x \ 3] \begin{bmatrix} 1 & 2 \\ -3 & 0 \end{bmatrix} \begin{bmatrix} x \\ 3 \end{bmatrix} = 0$$

Q4.

If $2 \begin{bmatrix} 3 & 4 \\ 5 & x \end{bmatrix} + \begin{bmatrix} 1 & y \\ 0 & 1 \end{bmatrix} = \begin{bmatrix} 7 & 0 \\ 10 & 5 \end{bmatrix}$, then find $(x - y)$

Q5.

Find value of $2a + 3b - c$, if $A = \begin{bmatrix} 0 & -1 & 28 \\ a - 8 & 0 & 3b \\ -c + 2 & 2 & 0 \end{bmatrix}$ is a skew-symmetric matrix

Q6.

There are two real value(s) of x , for which the value of the determinant $\Delta = \begin{vmatrix} 1 & -2 & 5 \\ 2 & x & -1 \\ 0 & 4 & 2x \end{vmatrix}$ is 86.

Find the value(s) of x

Q7.

Two badminton teams A and B are staying in the same hotel. Team A has 2 male and 3 female players accompanied by 1 coach. Team B comprises of 1 male, 2 female players and 2 coaches. The daily diet requirement (calories and protein) for each person is as given below:

	Calories	Protein
Male player	2500	65 g
Female player	1900	50 g
Coach	2000	54 g

Use matrix algebra to calculate the total diet requirement of calories and protein for each team.

Q8.

Obtain 4-yearly centered moving averages for the following time series.

Year	1987	1988	1989	1990	1991
Annual sales (in lakh ₹)	36	43	43	34	44
Year	1992	1993	1994	1995	
Annual sales (in lakh ₹)	52	38	49	54	

Q9.

A printing press costs the company ₹ 200,000 and its effective life is estimated to be 12 years. If the scrap realises ₹ 10000 only, what amount should be retained out of profits at the end of each year to accumulate at a compound interest at 5% per annum? (Given $(1.05)^{12} = 1.796$)

Q10.

Find $|AB|$, if $A = \begin{bmatrix} 0 & -1 \\ 0 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & 5 \\ 0 & 0 \end{bmatrix}$.

Q11.

Jenifer has just bought a house. She estimates that the roof will have to be renewed at a cost of ₹ 250,000 after 20 years. To cover these costs, she intends to save an equal amount of money at the end of each year, earning 10% annual interest rate. How much is such a yearly saving? (Given $(1.1)^{20} = 6.7275$)

Q12.

If $\begin{vmatrix} x+1 & x-1 \\ x-3 & x+2 \end{vmatrix} = \begin{vmatrix} 4 & -1 \\ 1 & 3 \end{vmatrix}$, then write the value of x .

Q13.

For what value of x , $A = \begin{bmatrix} 2(x+1) & 2x \\ x & x-2 \end{bmatrix}$ is a singular matrix?

Q14.

Write the value of $\Delta = \begin{vmatrix} x+y & y+z & z+x \\ z & x & y \\ -3 & -3 & -3 \end{vmatrix}$

Q15.

Find the present value of a sequence of payments of ₹ 8000 made at the end of each 6 months and continuing for ever, if money is worth 4% compounded semiannually.

Q16.

The number of road accidents in the city due to rash driving, over a period of 3 years, is given in the following table:

Year	Jan-Mar	Apr-Jun	Jul-Sept	Oct-Dec
2010	70	60	45	72
2011	79	56	46	84
2012	90	64	45	82

Calculate four quarterly moving averages and illustrate them and original figures on one graph using the same axes for both.

Q

17.

Consider the following data:

Dates in the month of April	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Number of units sold	2	5	0	12	13	25	45	13	31	18	11	2	3	1

Calculate three days moving averages and display these and the original figures on the same graph.

Q18.

$$\text{If } \begin{vmatrix} 2x & x+3 \\ 2(x+1) & x+1 \end{vmatrix} = \begin{vmatrix} 1 & 5 \\ 3 & 3 \end{vmatrix}, \text{ then find the value of } x.$$

Q19.

If $X = \begin{bmatrix} 3 & 1 & -1 \\ 5 & -2 & -3 \end{bmatrix}$ and $Y = \begin{bmatrix} 2 & 1 & -1 \\ 7 & 2 & 4 \end{bmatrix}$, find a matrix Z such that $X + Y + Z$ is a zero matrix.

Q20.

Find the value of x if $\begin{bmatrix} 1 & x & 1 \\ 2 & 5 & 1 \\ 15 & 3 & 2 \end{bmatrix} \begin{bmatrix} 1 \\ 2 \\ x \end{bmatrix} = O$

Q21.

If the matrix $\begin{bmatrix} 0 & a & 3 \\ 2 & b & -1 \\ c & 1 & 0 \end{bmatrix}$ is a skew symmetric matrix, find the values of a, b and c.

Q22.

Using matrix method solve the following system of equations:

$$\begin{array}{l} 6x - 9y - 20z = -4 \\ 4x - 15y + 10z = -1 \\ 2x - 3y - 5z = -1 \end{array} \quad \begin{array}{l} 2x + y + z = 1 \\ x - 2y - z = \frac{3}{2} \\ 3y - 5z = 9 \end{array}$$

ALL ACTIVITY – Prepare a project file in a creative and innovative way.

Activity Title: “Maths in Business: Budgeting and Loan Calculations for a Micro-Enterprise”

Materials Needed:

- Chart paper or spreadsheet printouts
- Internet access for research (optional)
- Sample interest rate tables (banks, cooperative societies, microfinance)

Activity Description:

Scenario:

Students are budding entrepreneurs in Odisha / Punjab planning to start a **small business** (like a cashew processing unit in Koraput, handloom in Sambalpur, or a tea stall / food cart in Amritsar or Ludhiana).

Activity Steps:

Step 1: Business Plan Selection

- Select a type of business relevant to Odisha's or Punjab's economy.
- Estimate initial costs (e.g., ₹50,000 to ₹2,00,000).

Step 2: Loan and Interest Calculation

- Assume the group takes a **loan** from:
 - A local bank (SBI, UCO)
 - An SHG (Self Help Group) or cooperative
- Use given interest rates (simple and compound) to calculate:
 - Total repayment over 1, 3, and 5 years
 - EMI using the formula

Step 3: Profit Estimation and Budget

- Assume monthly income and expenses.
- Create a monthly budget table.

Step 4: Present Your Financial Plan

- Present your business plan with a poster/chart showing:
 - Loan taken
 - Repayment details
 - Monthly budget
 - Profit estimate

WORKING MODEL

GROUP - 1

Design and create a Matrix Calculator Machine that demonstrates matrix addition, subtraction, and multiplication using movable strips, rotating wheels, or sliders. The model should allow users to change matrix values interactively and perform different matrix operations visually.

GROUP – 2

Design and create a Time Series-based Electricity Consumption Tracker with an LED Trend Board that displays monthly electricity usage data. The model should help analyze and compare increasing or decreasing electricity consumption patterns over time using graphs, charts, and LED indicators

FINE ARTS

•Make 2 still life in Acrylic colours of any two still life objects together (e.g.water bottle, fruits and vegetables)on half ivory sheet or on half chart.

•Make 3 composition (landscape or figurative paintings)

Note: The students has to use half ivory sheets for still life and composition and should use Acrylic colour in both still life and composition.

❁ **Eco Club Summer Green Mission** ❁

Theme for the Session

“Small Green Steps, Big Future Changes”

Eco Club Slogan

“Save Nature Today, Secure Tomorrow.”

Event Name

❁ **“My Kitchen Garden Mission”** ❁

Activity Details

Students will create a small kitchen garden at home using any one of the following:

- Pots
- Recycled bottles
- Trays
- Balcony space
- Terrace area
- Backyard soil

Students may select and grow:

- Coriander
- Mint
- Spinach
- Tomatoes
- Chillies

- Fenugreek
- Basil
- Any other seasonal vegetables/herbs

Student Tasks

Students Will Submit an Observation Report on an A4 Sheet:

📷 Paste 1–2 photographs while planting.

✍️ Write about:

- Weekly growth record
- Plant grown
- Duration taken for growth
- Challenges faced during gardening