VIVEKANAND MODERN ACADEMY

Chandrika Devi Road, Kathwara, Bakshi Ka Talab, Lucknow (U. P.)

The much-awaited summer break has started and it is the time we associate with fun, frolic, late mornings and long hours of play. But, summer vacation is so much more than T.V. shows and ice cream rolls. It's time to play and have fun INDOORS. Time to spend with kith and kin. Here we present the "Summer Vacation Activity List" and we hope you will make your holidays more interesting by doing these activities

As it is rightly said , "A life without love is like a year without summer"

Happy Holidays

SUMMER TIPS :

- *Dress your children in loose, light – coloured clothes.*
- *Take them for outdoor activities in the morning and evening hours.*
- *Take a walk in the nature with your family. Let the greenery relax your mind.*
- *Don't let the scorching heat stop you from having fun! Play various board games like Chess, Ludo, Scrabble etc.*
- *Keep your children hydrated. Make them drink lots of water.*
- *Help your children learn new things through exploring their interests.*
- *Books are children best friend. Create your child's interest in different colourful books.*
- *Dedicate one hour to reading each day. Read a book about fairies, or monsters, your choice!*
- *Motivate your children to speak golden words.*
- *Set timers for screen time. Let's have "no mobile phone day" once a week!*
- *Have a bed-time story session with your kids.*
- *Try to converse with your parents and friends in English. Listen to songs in English.*

Dear Students,

- *Summer Vacation is the best and the most fruitful time for learning and nurturing creativity. Keeping this objective in mind we have planned diverse and exciting activities that will enhance your knowledge and boost your creativity.*
- *"Knowledge is Power". Therefore read lots and lots of books to cultivate the reading habit and develop your vocabulary, language skills, increase your attention span and improve your spellings.*
- *"A healthy mind lives in a healthy body". So play the sport of your choice INDOORS. It will help to instill discipline, generate sporting spirits and channelize your energies constructively.*
- *Get up early in the morning and see the rising sun. Do indoor exercises / yoga and stay healthy and fit. Spend quality time with your elders and share your thoughts and ideas with them.*
- *Eat healthy food and drink lots of water during summer.*
- *Integrating curriculum helps students deepen their understanding of the subject matter and comprehend relationship between different areas of study. This year's holiday homework has been designed keeping this interdisciplinary aspect in mind.*
- *Inculcate good manners- 4 magic words 'Please, Thank You, Excuse Me, Sorry'-use them and see the difference*

Principal

HOLIDAYS FUN TIME

Dear Parents,

MORNING BLESSINGS : *Help your children to inculcate good habits by doing Surya Namaskar and encourage them to greet all elders in the morning. Learn two simple Yogasanas*

BEING RESPONSIBLE : *Spend a week with your elders. Observe their routine. Listen to their childhood memories, incidents from the past and watch their old family albums. This will strengthen the bond between you and your elders. Don't forget to capture them in the form of short videos.*

ENGAGE IN HOBBIES : *Explore Interests: Spend time on activities you enjoy, such as sports, music or art.*

ADOPT A TREE : *Encourage your child to adopt a tree in the park around you and make sure that you take care of it daily by watering it. Also, click a picture with it and share it with your class teacher.*

STAY ACTIVE : *Engage in regular exercise, whether through sports, walking, cycling, or home workouts.*

OUTDOOR ACTIVITIES : *Spend time outdoors, enjoying nature through hiking, swimming, or camping.*

HELPING OTHERS : *Do a good deed at least once a week, fostering a sense of community.*

TRAVEL AND EXPLORE : *Visit local museums, parks, or historical sites.*

TRIPS : *Plan trips, whether it's a family vacation or day trips to nearby attractions.*

DOWNTIME : *Ensure you have time to relax and unwind.*

SLEEP : *Maintain a healthy sleep schedule.*

STAY SAFE : *Follow health guidelines, stay hydrated.*

HOLIDAY HOME WORK

Session : 2025 – 26

Class : XII , Section : ……

Student's Name : ……

ENGLISH CORE

NOTE : All the work needs to be done in the English Notebook. Copy the questions and answer them in your notebooks.

- **Flamingo in Flamingo Notebook**
- **Vistas in Vistas Notebook**
- **Writing Section in Writing Notebook**

English Literature

1. The Last Lesson

(a) Everybody during the Last Lesson was filled with regret. Comment.
(b) How different from usual was the atmosphere at school on the day of the Last Lesson? (The Last Lesson)
(c) Educating children is the responsibility of society. Justify the statement in view of 'The Last Lesson'.
(d) "We've all a great deal to reproach ourselves with" said M. Hamel. Refer to the context and explain what he wanted to convey to his students.
(e) What a thunderclap these words were to me! (Franz). What were those words and what was their effect on Franz?
(f) Character sketch of Franz and M. Hamel
(g) A paragraph on "Importance of Language in National Identity"

2. Lost Spring – Stories of Stolen Childhood

(a) Write a summary in 100–120 words.
(b) Identify and comment on the theme of poverty and child labour.
(c) Create a mind map of key incidents and characters.
(d) Reflect: How does this chapter connect to real-world socio-economic issues studied in Economics/Social Science?
(e) For the children it is wrapped in wonder, for the elders it is a means of survival. What kind of life do the rag-pickers of Seemapuri lead?
(f) Life of the bangle makers of Firozabad shows the grinding state of poverty and traditions that condemn thousands of people to live a life of misery. Elaborate.
(g) Why then does the author call Mukesh's dream 'a mirage'?
(h) What explanation did the children offer the writer for not wearing footwear? Did she agree to it? (Lost Spring)
(i) Write a character sketch of Saheb and Mukesh.
(j) Reflect: "Poverty deprives children of childhood." Write your thoughts in 150 words.

3. **My Mother at Sixty-Six**
   (a) Write a paraphrase of the poem in your own words.
   (b) Write the central theme and summary in your own words.
   (c) Identify and explain at least 3 literary devices used.
   (d) Write a short paragraph: "Emotional Well-being of Elderly in Indian Families".
   (e) Reflect on the emotional vs. scientific aspects of aging (Link with Biology/Commerce – Healthcare industry for elderly).
   (f) What do the parting words of Kamala Das and her smile signify? or What do the parting words of the poet and her smile signify?

Advanced Writing Skills

NOTICE

1. **Write Notices on the following occasions (three of each category)**
   (a) Meetings
   (b) Event
   (c) Tours / Camps
   (d) Exhibitions / Fairs
   (e) Sports
   (f) Cultural / Extra- curricular activities
   (g) Lost & Found
   (h) Inviting Entries
   (i) Appeals

JOB APPLICATIONS

2. Bal Vidya Public School, Bhilai, urgently requires a post-graduate teacher to teach political science for which they have placed an advertisement in The Bhilai Express. You are Sanjay/Sanjana Sharma from 21, Vasant Marg, Bhilai. Draft a letter including a CV, applying for the advertised post. (120 – 150 words)
3. You are Ram/Rajani, living at 1, Rana Pratap Marg, New Delhi. Read the advertisement given below and apply for the job that suits you giving your bio-data separately. Sun University requires Lecturers in English and Demonstrators in Physics, Chemistry and Botany for their new Campus at Panipat. Candidates with a minimum of 5 year experience alone can apply. Excellent command of English is a must. Excellent package and compensation for experienced persons. Those interested may e-mail to sununiversityjobs@gmail.com or mail their response to: Box no 123, 'The Harbinger', New Delhi.
4. M/s Tenant Technologies, Gurugram, Haryana has advertised on Jobs.com some positions of Web-content Managers. Write a job application to offer your services. Express your willingness to work with them and invent all the other necessary details. Enclose your Bio- data as well.
5. You are Arjun of 14, New Town, Delhi. You have seen an advertisement in The Times of India for the post of Chief Chef in a 5-Star Hotel. Apply for the job with complete biodata. Write in 125-150 words.
6. You are Suman of 19, TT Nagar, Bhopal. You would like to apply for the post of Marketing Manager in a reputed firm in Mumbai. Write a letter to the Public Relations Officer, Chantap Enterprises, Mumbai, applying for the job. Write the letter in 125-150 words giving your biodata.

INVITATIONS

7. You are Faiz/Falak Mazumdar living at 39, Udampur Colony, Shimla. You decide to hold a dinner party to congratulate your grandparents on their golden wedding anniversary. Draft a formal invitation in not more than 50 words to all family members to attend a grand dinner at home.
8. Write an invitation in not more than 50 words to your friend Rameshwari to spend her winter break with you in Mumbai. You are Puja/Puneet of 25, M.G. Road, Mumbai.
9. You are the Secretary of the Old Students' Association, Mayo School, Ajmer. The 20th Alumni Meet will be held on Sunday, the 28th Sept. 20XX at 8.00 p.m. at Palace Hotel. Write invitation letters to all the old students of the school to attend the meet
10. On 30th November, your school is going to hold its annual sports day. You want Mr. Dhanraj Pillai, a noted hockey player to give away the prizes to the budding sportspersons of the school. Write a formal invitation in about 50 words requesting him to grace the occasion. You are Karuna/ Karan, Sports Secretary, Sunrise Global School, Agra.
11. Draft an invitation in about 50 words, on behalf of your aunt, Meghna Menon, which she has to share to invite prior work colleagues to the inaugural event of her own investment consultancy firm, in the Acer mall, Kozhikode, Kerala.
12. You are Dr. Suchitra Mukherjee. You have received an invitation from the Director, Health Services, Kharagpur, W.B, to preside over a gathering of leading medical practitioners attending a workshop on mental wellness on 09 November, 2022 at 11 a.m. in the Public Hospital, Jammu, J & K. Respond to accept the invitation in about 50 words.
13. On the occasion of Van Mahotsav function in your school. Draft an invitation to invite a renowned environmentalist for a tree plantation drive in your school. You are Suman/Sonu the Head Girl/Boy of New Field School.
14. As Secretary of the Literary Society of your school, write a letter of invitation to an eminent journalist inviting him to address the students on a talk show to be held in your school
15. Draft a formal Invitation for the inauguration of a Showroom.
16. You are Neha / Nakul, the President of the English Literary and Cultural Society of Government Model Sr. Sec. School, Sector 19, Chandigarh. You have to organise an Inter Zonal Declamation Competition on the topic "Communication Skills are very Important in Modern World" at 10 +2 level. You wish to invite Dr. Shailesh Gupta, an eminent educationist to preside over the function to be held on 16 August, 2022 at 9:30 p.m.

REPLY TO AN INVITATION : (Acceptance)

17. You are Akash/Ashini. You have been invited to attend the wedding of your friend's sister.Respond to the invitation accepting it. (Home Work on July 2)
18. You are Varun/Veena of 23, Ramesh Nagar Delhi. Your friend Neeraj has invited you for a party to celebrate his good board result and admission to a prestigious college. Draft a reply accepting the invitation.
19. You are Shaan/Shruti of C-29, Pragati Apartment, Rohini Delhi. You have received an invitation to attend the inauguration ceremony of his newly opened Departmental Store. Write a reply accepting the invitation.

REPLY TO AN INVITATION : Questions for Practice (Refusal)

20. Your friend is throwing a party to celebrate his success in board exams. Send a reply regretting your inability to attend the same due to a prior engagement.

21. Mr. and Mrs. Narang of 2, Newland Apartment, Rohini have decided to have a party on the occasion of sixteenth birthday of their daughter. You are unable to attend the function. Write a reply in about 50 words.

22. You are Shaan/Shruti of C-29, Pragati Vihar. You have received an invitation to attend the inauguration ceremony newly opened shop of your friend Karan. Write a reply of refusal, regretting you inability to attend the ceremony.

FORMAL LETTERS

23. Write Formal letters on the following topics (three of each category)

(a) Complaint
(b) Editor
(c) Placing & Cancelling order
(d) Enquiry

24. Write Articles on the following topics in about 150 words :

(a) Artificial Intelligence: Boon or Bane?
(b) Startups & Young Entrepreneurs in India

25. Write the definition of following Literary Devices and exemplify them by giving suitable examples from your book of FLAMINGO.

1. Allegory
2. Alliteration
3. Allusion
4. Anaphora
5. Antithesis
6. Apostrophe
7. Assonance
8. Consonance
9. Enjambment
10. Epithet
11. Euphemism
12. Hyperbole
13. Imagery
14. Irony
15. Metaphor
16. Metonymy
17. Onomatopoeia
18. Oxymoron
19. Paradox
20. Personification
21. Pun
22. Refrain
23. Repetition
24. Simile
25. Symbolism
26. Synecdoche
27. Transferred Epithet

YOGA

1. **Asanas and Their Benefits : (Write in file)**
   Write about any five asanas from your syllabus. For each asana, include:
   - Name (in Sanskrit and English)
   - Procedure (steps to perform)
   - Benefits (at least 5)
   - Contraindications (who should avoid it)
2. **Yoga and Lifestyle Disorders** : (Write in file)
   Write a detailed note (500-700 words) on the topic : "Role of Yoga in Managing Lifestyle Disorders". It will Include:
   - Introduction to lifestyle disorders
   - Common disorders (e.g., obesity, diabetes, hypertension, stress)
   - How yoga helps in prevention and management
   - Conclusion
3. **Pranayama - The Art of Breathing :** (Write in file)
   Write about the following three pranayamas : (a) Anulom-Vilom (b) Kapalbhati (c) Bhramari. Each will include :
   - Steps to perform
   - Benefits (minimum 4)
   - Precautions
4. **Yoga for Mental Health** : (Write in file)
   Write a short essay (300-400 words) on the topic: "How Yoga Helps Improve Concentration and Reduce Stress in Students"
5. **Poster/Chart Page (Optional - for decoration)** : (Add in the same file). Design one creative page with:
   - Drawings or images of yoga asanas
   - A motivational yoga quote
   - Title: "YOGA - The Journey Within"

हिन्दी

पाठ्य पुस्तक

1. **लेखिका ने भक्तिन के सेवक धर्म की तुलना किससे की है? क्यों?**
2. **भक्तिन का स्वभाव कैसा बन गया था?**
3. **भक्ति निरक्षर होते हुए भी साक्षर लोगों की गुरु कैसे बन गई?**
4. **बाजार किन्हें आमंत्रित करता है और क्यों?**
5. **संयमी लोग कौन होते हैं?**
6. **भगत का स्वभाव क्या बाजार के लिए लाभदायक है? अपने विचार दीजिए।**

7. **पर्चेजिंग पावर** से तात्पर्य है?
8. **शीतल आग** से क्या तात्पर्य है?

अभिव्यक्ति और माध्यम

9. **ब्रेकिंग न्यूज़ से क्या तात्पर्य है?**
10. **जनसंचार के विभिन्न माध्यमों का प्रमुख कार्य क्या है?**
11. **रेडियो समाचार से क्या तात्पर्य है? यह किस शैली में लिखे जाते हैं?**
12. **इंटरनेट पत्रकारिता से आप क्या समझते हैं?**

परियोजना कार्य

(a) **आरोह (गद्य एवं काव्य) पाठ्य पुस्तक** के बताए गए कार्य को पूर्ण कीजिए।
(b) **वितान पूरक पुस्तक** के बताए गए कार्य को पूर्ण कीजिए।
(c) **अभिव्यक्ति और माध्यम** के बताए गए कार्य को पूर्ण कीजिए।

PHYSICAL EDUCATION

(A) Physical Fitness Test Administration

1. Harvard Step Test
- ❖ Aim
- ❖ Material Required
- ❖ Procedure
- ❖ Result with calculation
- ❖ Remarks

2. Body Mass Index (BMI)
- ❖ Formula
- ❖ Calculation (Use your own height & weight)
- ❖ Category (Underweight, Normal, Overweight, etc.)

3. Sit and Reach Test
- ❖ Aim
- ❖ Procedure
- ❖ Result
- ❖ Interpretation

4. Standing Broad Jump
- ❖ Aim
- ❖ Material Required
- ❖ Procedure
- ❖ Result

5. Push-ups / Sit-ups Test
- ❖ Select one
- ❖ Procedure
- ❖ Result
- ❖ Comments on muscular endurance

(B) Proficiency in Games/Sports

(i) Name of the Game/Sport
(ii) History and Development
(iii) Latest Rules and Regulations
(iv) Fundamental Skills and Techniques
(v) Diagram of the Court/Field (with proper labeling)
(vi) Major National and International Tournaments
(vii) Famous Indian and International Players
(viii) Trophies and Awards related to the game

(C) Viva Preparation

Write and learn 10-15 important viva questions based on:

- ❖ Fitness tests
- ❖ Game rules
- ❖ Skills and terminologies
- ❖ Sports awards and tournaments

(D) Game-Based Report Work

1. Introduction of the Game
2. History and Evolution
3. Measurements and Layout of the Court/Field (Attach diagram)
4. Rules and Regulations (latest updates)
5. Basic/Fundamental Skills
6. Major Tournaments (India & International)
7. Famous Players (with 2-3 names for each - Indian and International)
8. Associated Awards and Trophies
9. Conclusion (Your learnings from the sport)

PHYSICS

1. What is the value of charge on an electron? What is the SI unit of charge?
2. What are conductors and insulators? Give 3 examples of each.
3. What is Coulomb's law? Write it's formula.
4. Write the properties of electric field lines.
5. What is Gauss Law?
6. Derive the formula for electric field due to a uniformly charged infinite plane sheet.
7. An electric dipole with dipole moment 4×10^{-9} C m is aligned at 30° with the direction of a uniform electric field of magnitude 5×10^{4} NC^{-1}. Calculate the magnitude of the torque acting on the dipole.
8. Consider a uniform electric field $E = 3 \times 10^{3}$ î N/C. (a) What is the flux of this field through a square of 10 cm on a side whose plane is parallel to the *y*-*z* plane? (b) What is the flux through the same square if the normal to its plane makes a 60° angle with the *x*-axis?
9. A point charge of 2.0 mC is at the centre of a cubic Gaussian surface 9.0 cm on edge. What is the net electric flux through the surface?

10. Define electrostatic potential energy and electrostatic potential. Write its formula.
11. Write the relation between electric field and potential. What does the negative sign indicate?
12. Write all the electrostatic properties of conductors.
13. Derive the formula for capacitance of a parallel plate capacitor. What is the purpose of inserting a dielectric in between the plates?
14. In a parallel plate capacitor with air between the plates, each plate has an area of 6 × 10–3 m2 and the distance between the plates is 3 mm. Calculate the capacitance of the capacitor. If this capacitor is connected to a 100 V supply, what is the charge on each plate of the capacitor?
15. A slab of material of dielectric constant K has the same area as the plates of a parallel-plate capacitor but has a thickness $(3/4)d$, where d is the separation of the plates. How is the capacitance changed when the slab is inserted between the plates?
16. A 12pF capacitor is connected to a 50V battery. How much electrostatic energy is stored in the capacitor?
17. A 600pF capacitor is charged by a 200V supply. It is then disconnected from the supply and is connected to another uncharged 600 pF capacitor. How much electrostatic energy is lost in the process?
18. Three capacitors each of capacitance 9 pF are connected in series.
    (a) What is the total capacitance of the combination?
    (b) What is the potential difference across each capacitor if the combination is connected to a 120 V supply?
19. Three capacitors of capacitances 2 pF, 3 pF and 4 pF are connected in parallel.
    (a) What is the total capacitance of the combination?
    (b) Determine the charge on each capacitor if the combination is connected to a 100 V supply.
20. Complete the physics paper of the pre-periodic question paper in fair copy.

Note : If your copy is not checked, please complete your work and submit your class-work copy on the first day of school.

CHEMISTRY

Select any one title for project work and write the content for it

1. Study of the casein content in different samples of milk.
2. Analysis of Vitamin C content In different fruits and vegetables
3. Study of food adulteration
4. Study of role of bleaching powder in purification of waters
5. Analysis of different brand of tea/coffee for tannin content.

MATHEMATICS

1. Solve 10 years previous CBSE Exam Papers related to following topic :

(a) Matrix

(b) Determinants

(c) Inverse Trigonometry

(Chapter – 2: Inverse Trigonometric Functions)

	CLASS WORK
1.	Find the value of: i) $\text{Tan}^{-1}(1)+\cos^{-1}\left(-\frac{1}{2}\right)+\sin^{-1}\left(-\frac{1}{2}\right)$ ii) $\text{Tan}^{-1}\left(\sqrt{3}\right)-\text{Sec}^{-1}(-2)+\text{Cos}\,ec^{-1}\left(-\frac{2}{\sqrt{3}}\right)$ iii) $\text{Sin}^{-1}\left(-\frac{1}{2}\right)+2\text{Cos}^{-1}\left(-\frac{\sqrt{3}}{2}\right)$ iv) $\text{Sin}^{-1}\sin\left(\frac{\pi}{3}-\text{Sin}^{-1}\left(-\frac{\sqrt{3}}{2}\right)\right)$ v) $\text{Cos}^{-1}\left(\frac{3}{5}\text{Cos}\,x+\frac{4}{5}\text{Sin}\,x\right)$
2.	Evaluate: i) $\text{Sin}^{-1}\sin\left(\frac{\pi}{3}\right)$ ii) $\text{Cos}^{-1}\cos\left(\frac{2\pi}{3}\right)$ iii) $Tan^{-1}\text{Tan}\left(\frac{3\pi}{4}\right)$ iv) $\text{Cos}^{-1}\cos\left(\frac{7\pi}{6}\right)$ v) $\text{Sin}^{-1}\sin\left(\frac{2\pi}{3}\right)+\text{Cos}^{-1}\cos\left(\frac{2\pi}{3}\right)$ vi) $\text{Cos}^{-1}\cos\left(\frac{13\pi}{6}\right)+Tan^{-1}\text{Tan}\left(\frac{5\pi}{6}\right)$
3.	Evaluate: i) $\text{Sin}\left[2\text{Cos}^{-1}\left(Cot\left(2\text{Tan}^{-1}x\right)\right)\right]=0$ ii) $\text{Cos}\left(\text{Sec}^{-1}x+\text{Cos}\,ec^{-1}x\right)$
4.	Find the value of: i) $\text{Sin}\left(\text{Tan}^{-1}x\right)$ ii) $\text{Cos}\left(Cot^{-1}x\right)$
5.	Simplify: $\text{Tan}^{-1}\frac{x}{y}-\text{Tan}^{-1}\frac{x-y}{x+y}$
6.	Simplify: i) $Tan^{-1}\sqrt{\frac{1-\cos x}{1+\cos x}}$, -π<x<π ii) $Tan^{-1}\left(\frac{\text{Cos}\,x}{1+\text{Sin}\,x}\right), -\pi/2<x<\pi/2$ iii) $Tan^{-1}\left(\frac{\text{Cos}\,x}{1-\text{Sin}\,x}\right), -\pi/2<x<\pi/2$ iv) $Tan^{-1}\sqrt{\frac{a-x}{a+x}}$, -a<x<a
7.	Simplify: i) $Tan^{-1}\left(\frac{\text{Cos}\,x-\text{Sin}\,x}{\text{Cos}\,x+\text{Sin}\,x}\right) -\pi/4<x<\pi/4$, ii) $Tan^{-1}\left(\frac{a\,\text{Cos}\,x-b\,\text{Sin}\,x}{b\,\text{Cos}\,x+a\,\text{Sin}\,x}\right)$ iii) $Tan^{-1}\left(\frac{3a^2x-x^3}{a^3-3ax^2}\right)$ iv) $\text{Tan}^{-1}\left[\frac{\sqrt{1+x^2}+1}{x}\right]$ v) $\text{Tan}^{-1}\left[\sqrt{1+x^2}-x\right]$ vi) $\text{Sin}\left[2\tan^{-1}\sqrt{\frac{1-x}{1+x}}\right]$
	Prove the following: -
8.	i) $\text{Sin}^{-1}\frac{8}{17}+\text{Sin}^{-1}\frac{3}{5}=\text{Sin}^{-1}\frac{77}{85}$ ii) $\text{Cos}^{-1}\frac{12}{13}+\text{Sin}^{-1}\frac{3}{5}=\text{Sin}^{-1}\frac{56}{65}$
9.	i) $\text{Sin}^{-1}\frac{12}{13}+\text{Cos}^{-1}\frac{4}{5}+\text{Tan}^{-1}\frac{63}{16}=\pi$ ii) $\text{Sin}^{-1}\frac{4}{5}+\text{Sin}^{-1}\frac{5}{13}+\text{Sin}^{-1}\frac{16}{65}=\frac{\pi}{2}$
10.	$\text{Tan}\left(\frac{1}{2}\text{Sin}^{-1}\frac{3}{4}\right)=\frac{4-\sqrt{7}}{3}$
11.	i) $\text{Tan}^{-1}\frac{2}{11}+\text{Tan}^{-1}\frac{7}{24}=\text{Tan}^{-1}\frac{1}{2}$ ii) $\text{Tan}^{-1}2+\text{Tan}^{-1}3=\frac{3\pi}{4}$
12.	i) $\text{Tan}^{-1}\frac{1}{5}+\text{Tan}^{-1}\frac{1}{7}+\text{Tan}^{-1}\frac{1}{3}+\text{Tan}^{-1}\frac{1}{8}=\frac{\pi}{4}$ ii) $\text{Tan}^{-1}\frac{1}{4}+\text{Tan}^{-1}\frac{2}{9}=\frac{1}{2}\text{Cos}^{-1}\frac{3}{5}$
13.	i) $2\text{Tan}^{-1}\frac{1}{5}+\text{Tan}^{-1}\frac{1}{8}=\text{Tan}^{-1}\frac{4}{7}$ ii) $2\text{Tan}^{-1}\frac{1}{3}+\text{Sin}^{-1}\frac{4}{5}=\frac{\pi}{2}$
14.	i) $2\text{Tan}^{-1}\frac{1}{5}+\text{Sec}^{-1}\frac{5\sqrt{2}}{7}+2\text{Tan}^{-1}\frac{1}{8}=\frac{\pi}{4}$ ii) $Cot^{-1}7+Cot^{-1}8+Cot^{-1}18=Cot^{-1}3$

15.	$\text{Tan}^{-1}\left[\frac{\sqrt{1+x^2}+\sqrt{1-x^2}}{\sqrt{1+x^2}-\sqrt{1-x^2}}\right]=\frac{\pi}{4}+\frac{1}{2}\text{Cos}^{-1}x^2$
16.	i) $\text{Tan}^{-1}\left[\frac{\sqrt{1+x}-\sqrt{1-x}}{\sqrt{1+x}+\sqrt{1-x}}\right]=\frac{\pi}{4}-\frac{1}{2}\text{Cos}^{-1}x$ ii $Cot^{-1}\left[\frac{\sqrt{1+\text{Sin}\,x}+\sqrt{1-\text{Sin}\,x}}{\sqrt{1+\text{Sin}\,x}-\sqrt{1-\text{Sin}\,x}}\right]=\frac{x}{2}$
	Solve the following: -
17.	If $\text{Tan}^{-1}x=\frac{\pi}{10}$, x ∈ R, find the value $Cot^{-1}x$
18.	If $3\text{Tan}^{-1}x+\cot^{-1}x=\pi$, find the value of x
19.	i) $\text{Tan}^{-1}2x+\text{Tan}^{-1}3x=\frac{\pi}{4}$ ii) $\text{Tan}^{-1}\left(\frac{x-1}{x-2}\right)+\text{Tan}^{-1}\left(\frac{x+1}{x+2}\right)=\frac{\pi}{4}$ iii) $\text{Tan}^{-1}\left(\frac{x-1}{x+1}\right)+\text{Tan}^{-1}\left(\frac{2x-1}{2x+1}\right)=\text{Tan}^{-1}\left(\frac{23}{36}\right)$ iv) $\cot^{-1}\frac{1}{x+1}+Cot^{-1}\frac{1}{x-1}=\text{Tan}^{-1}3x-\text{Tan}^{-1}x$
20.	i) $\text{Tan}^{-1}\left(\frac{1-x}{1+x}\right)=\frac{1}{2}\text{Tan}^{-1}x,\ x>0$ ii) $2\text{Tan}^{-1}\text{Cos}\,x=\text{Tan}^{-1}(2\cos ecx)$
21.	i) $\text{Sin}^{-1}(1-x)-2\text{Sin}^{-1}x=\frac{\pi}{2}$ ii) $\text{Sin}^{-1}x+\text{Sin}^{-1}(1-x)=\text{Cos}^{-1}x$
22.	i) $\text{Sin}^{-1}6x+\text{Sin}^{-1}6\sqrt{3}x=-\frac{\pi}{2}$ ii) $\text{Tan}^{-1}\left(\frac{1-x}{1+x}\right)-\frac{1}{2}\text{Tan}^{-1}x=0,\ x>0$ iii) $\left(\text{Tan}^{-1}x\right)^2+\left(\text{Cot}^{-1}x\right)^2=\frac{5\pi^2}{8}$
23.	If $\text{Tan}^{-1}x+\text{Tan}^{-1}y=\frac{4\pi}{5}$, find the value of $Cot^{-1}x+Cot^{-1}y$
24.	Evaluate: $\text{Tan}^{-1}\left[\frac{3\text{Sin}\,2\alpha}{5+3\text{Cos}\,2\alpha}\right]+\text{Tan}^{-1}\left(\frac{1}{4}\text{Tan}\,\alpha\right)$
25.	Prove that $\text{Tan}\left[\frac{\pi}{4}+\frac{1}{2}\text{Cos}^{-1}\left(\frac{a}{b}\right)\right]+\text{Tan}\left[\frac{\pi}{4}-\frac{1}{2}\text{Cos}^{-1}\left(\frac{a}{b}\right)\right]=\frac{2b}{a}$
26.	If a > b > c > 0, prove that $Cot^{-1}\left(\frac{ab+1}{a-b}\right)+Cot^{-1}\left(\frac{bc+1}{b-c}\right)+Cot^{-1}\left(\frac{ca+1}{c-a}\right)=\pi$
27.	If $\text{Cos}^{-1}\left(\frac{x}{a}\right)+\text{Cos}^{-1}\left(\frac{y}{b}\right)=\alpha$, prove that $\frac{x^2}{a^2}-\frac{2xy\cos\alpha}{ab}+\frac{y^2}{b^2}=\text{Sin}^2\alpha$
28.	If $\text{Cos}^{-1}x+\text{Cos}^{-1}y+\text{Cos}^{-1}z=\pi$, prove that $x^2+y^2+z^2+2xyz=1$
29.	If $\text{Tan}^{-1}x+\text{Tan}^{-1}y+\text{Tan}^{-1}z=\frac{\pi}{2}$, prove that xy +yz +zx = 1
30.	Prove that $2\text{Tan}^{-1}\left[\sqrt{\frac{a-b}{a+b}}\tan\left(\frac{x}{2}\right)\right]=\text{Cos}^{-1}\left[\frac{b+a\text{Cos}\,x}{a+b\text{Cos}\,x}\right]$
31.	Prove that $\frac{9\pi}{8}-\frac{9}{4}\text{Sin}^{-1}\left(\frac{1}{3}\right)=\frac{9}{4}\text{Sin}^{-1}\left(\frac{2\sqrt{2}}{3}\right)$
32.	Prove that $\text{Tan}\frac{1}{2}\left[\text{Sin}^{-1}\left(\frac{2x}{1+x^2}\right)+\text{Cos}^{-1}\left(\frac{1-y^2}{1+y^2}\right)\right]=\frac{x+y}{1-xy}$

	Prove the following: -
41.	i) $\text{Cos}^{-1}\frac{12}{13}+C\,\text{os}^{-1}\frac{4}{5}=\text{Cos}^{-1}\frac{33}{65}$ ii) $\text{Sin}^{-1}\frac{3}{5}-\text{Sin}^{-1}\frac{8}{17}=\text{Cos}^{-1}\frac{84}{85}$
42.	i) $\text{Tan}^{-1}\frac{1}{7}+\text{Tan}^{-1}\frac{1}{13}=\text{Tan}^{-1}\frac{2}{9}$ ii) $\text{Tan}^{-1}\frac{1}{2}+\text{Tan}^{-1}\frac{1}{5}+\text{Tan}^{-1}\frac{1}{8}=\frac{\pi}{4}$
43.	$\text{Tan}^{-1}1+\text{Tan}^{-1}2+\text{Tan}^{-1}3=2\left(\text{Tan}^{-1}1+\text{Tan}^{-1}\frac{1}{2}+\text{Tan}^{-1}\frac{1}{3}\right)$
44.	$\text{Tan}^{-1}\left[\frac{\sqrt{1+x^3}-\sqrt{1-x^3}}{\sqrt{1+x^3}+\sqrt{1-x^3}}\right]=\frac{\pi}{4}-\frac{1}{2}\text{Cos}^{-1}x^3$
45.	$\text{Tan}^{-1}\left[\frac{\sqrt{1+\text{Cos}\,x}+\sqrt{1-\text{Cos}\,x}}{\sqrt{1+\text{Cos}\,x}-\sqrt{1-\text{Cos}\,x}}\right]=\frac{\pi}{4}+\frac{x}{2}$

CLASS:-XII

SECTION - A

1. If A is a 3×3 matrix and $|\text{adj } A| = 64$, then $|A| =$

   (a) ± 64 (b) ± 8 (c) 64 (d) 18

2. If Aij is the co-factor of aij, then the value of $|A|$ is

   (a) $a_{11}A_{11} + a_{12}A_{12} + a_{13}A_{13}$ (b) $a_{11}A_{31} + a_{12}A_{32} + a_{13}A_{33}$

   (c) $a_{11}A_{13} + a_{12}A_{12} + a_{13}A_{11}$ (d) none of these

3. If A, B are square matrix of order $3, A$ is non-singular and $AB = 0$, then B is a (a)

   (a) null matrix (b) singular matrix (c) unit matrix (d) non-singular matrix

4. Let $\begin{vmatrix} x & 2 & x \\ x^2 & x & 6 \\ x & x & 6 \end{vmatrix} = ax^4 + bx^3 + cx^2 + dx + e$. The value of $5a + 4b + 3c + 2d + e$ is equal to:

   (a) 0 (b) -16 (c) 16 (d) none of these

5. f $\begin{vmatrix} x & 2 \\ 18 & x \end{vmatrix} = \begin{vmatrix} 6 & 2 \\ 18 & 6 \end{vmatrix}$, then x is equal to

   (a) 6 (b) ± 6 (c) -6 (d) 0

6. If A is a skew-symmetric matrix of order 2, then det A is of the form

   (a) a^2 (b) $a^2 - 1$ (c) $a^2 + 1$ (d) none of these

7. If A is a invertible matrix of order 2, then $|A^{-1}|$ is_____.

8. If a, b, c are in A.P, then $\begin{vmatrix} x+2 & x+3 & x+2a \\ x+3 & x+4 & x+2b \\ x+4 & x+5 & x+2c \end{vmatrix}$ is _____.

9. If $A = \begin{bmatrix} 1 & 2 & -1 \\ -1 & 1 & 2 \\ 2 & -1 & 1 \end{bmatrix}$, then the value of $\det(adj(adjA))$ is _____.

10. For any 2×2 matrix, if $A(adjA) = \begin{bmatrix} 10 & 0 \\ 0 & 10 \end{bmatrix}$, then $|A| =$ _____.

11. If $|A| = 11$, where A is a 3^{rd} order square matrix then $|cofA| =$ _____.

12. If A is 3×3 non-singular matrix such that $adjA = adjA^{-1}$, then $|A| =$ _____.

13. If A is a square matrix of order 3×3, then find $|kA|$.

14. If A and B are square matrices of order 3 such that $|A| = -1, |B| = 3$, then find $|3AB|$

15. If B is a non-singular matrix and A is a square matrix, then find the value of $\det(B^{-1}AB)$.

16. Find the value of λ and μ, for which $x+y+z=5, x+2y+3z=9, x+3y+\lambda z=\mu$ has a unique solution.

17. If $A=\begin{bmatrix}2&0&0\\2&2&0\\2&2&2\end{bmatrix}$, find $|adj(adj(adjA))|$.

18. If $A=\begin{bmatrix}1&\sin\theta&1\\\sin\theta&1&\sin\theta\\-1&-\sin\theta&1\end{bmatrix}, 0\le\theta\le 2\pi$, find $|A|$.

SECTION - B

19. If $adjA=\begin{bmatrix}2&3\\4&-1\end{bmatrix}, adjB=\begin{bmatrix}1&-2\\-3&1\end{bmatrix}$, then find $adj(AB)$.

20. If $A=\begin{bmatrix}3&2\\1&1\end{bmatrix}$, find values of a and b such that $A^2+aA+bI=0$.

21. If A is a skew-symmetric matrix of odd order n, then prove that $|A|=0$.

22. Without expanding, prove that $\Delta=\begin{vmatrix}0&a&-b\\-a&0&-c\\b&c&0\end{vmatrix}=0$.

23. If $A=\begin{bmatrix}x&5&2\\2&y&3\\1&1&z\end{bmatrix}, xyz=80, 3x+2y+10z=20$, then find $A\cdot(adjA)$.

24. If A and B are square matrices of the same order, prove that $adj(AB)=(adjB)(adjA)$

25. Find the value of k, if the area of the triangle with vertices (k,0), (4,0) and (0,2) is 4 sq. units.

26. Find the equation of the line joining (1, 2) and (3, 6) using determinants.

27. Without expanding, evaluate the determinant: $\begin{vmatrix}(a^x+a^{-x})^2&(a^x-a^{-x})^2&1\\(a^y+a^{-y})^2&(a^y-a^{-y})^2&1\\(a^z+a^{-z})^2&(a^z-a^{-z})^2&1\end{vmatrix}$

28. If $A=\begin{bmatrix}\alpha&2\\2&\alpha\end{bmatrix}$ & $[A^3]=125$, then find α.

29. Prove that the points (a, b + c), (b, c + a) and (c, a + b) are collinear.

30. Find the sum of the two values of a which makes determinant, $\Delta=\begin{vmatrix}1&-2&5\\2&a&-1\\0&4&2a\end{vmatrix}=86$

Exercise:

Q. Find the adjoint of the matrices.

1. $\begin{bmatrix} 5 & 3 \\ 2 & 1 \end{bmatrix}$

2. $\begin{bmatrix} cos\theta & -sin\theta \\ sin\theta & cos\theta \end{bmatrix}$

3. $\begin{bmatrix} -1 & 0 & 2 \\ 2 & 1 & 0 \\ 3 & 2 & 1 \end{bmatrix}$

4. $\begin{bmatrix} -1 & -2 & 3 \\ -2 & 1 & 1 \\ -4 & -5 & 2 \end{bmatrix}$

5. $\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$

Q. If $A = \begin{bmatrix} 1 & 2 & 3 \\ 3 & 1 & 2 \\ 1 & 0 & 3 \end{bmatrix}$, find the value iof A (Adj A) without finding Adj A.

Hint : A (AdjA) = |A |I

Q. If $A = \begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 1 \\ 2 & 1 \end{bmatrix}$, prove that adjAB = (adjA)(adjB)

Q. Prove that |adjAB| = |adjA||adjB|

Q.For the matrix $A = \begin{bmatrix} 1 & -1 & 1 \\ 2 & 3 & 0 \\ 18 & 2 & 10 \end{bmatrix}$, show that A (adjA) = 0

Exercise

Q. Solve the following system of equations by matrix method:

1. 2x -3y = 1 , 3x -2y = 4

2. x + y =5 , z + y = 7 , z + x = 6

3. $\frac{2}{x} + \frac{3}{y} + \frac{10}{z} = 4$

$\frac{4}{x} - \frac{6}{y} + \frac{5}{z} = 1$

$\frac{6}{x} + \frac{9}{y} - \frac{20}{z} = 2$

4. If A = , $\begin{bmatrix} 8 & -4 & 1 \\ 10 & 0 & 6 \\ 8 & 1 & 6 \end{bmatrix}$, Find A^{-1} . Solve the following system of linear equations:

$$8x - 4y + z = 5,\ \ 10x + 6z = 4,\ 8x + y + 6z = \frac{5}{2}$$

5. Find k so that the system of equation may have unique solutions.

$3x - 2y + 2z = 1$, $2x + y + 3z = -1$, $x - 3y + kz = 0$

6. $3x + y - 2z = 0$, $x + y + z = 0$, $x - 2y + z = 0$

7. $x + y - z = 0$

$x - 2y + z = 0$

$3x + 6y - 5z = 0$

Exercise:

Q. Find the inverse of each of the following matices:

1. $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$

2. $\begin{bmatrix} a & b \\ c & \frac{1+bc}{a} \end{bmatrix}$

3. $\begin{bmatrix} 2 & -1 & 1 \\ -1 & 2 & -1 \\ 1 & -1 & 2 \end{bmatrix}$

4. $\begin{bmatrix} 1 & 0 & 0 \\ 0 & \cos\theta & \sin\theta \\ 0 & \sin\theta & -cos\theta \end{bmatrix}$

Q. Find the inverse of the given matrice $\begin{bmatrix} 2 & 3 & 1 \\ 3 & 4 & 1 \\ 3 & 7 & 2 \end{bmatrix}$

and verify that $A^{-1} A = I_3$.

Q. If $A = \begin{bmatrix} 2 & 1 \\ 5 & 3 \end{bmatrix}$ and $B = \begin{bmatrix} 4 & 5 \\ 3 & 4 \end{bmatrix}$ verify that $(AB)^{-1} = B^{-1}A^{-1}$

Q. Given that $A = \begin{bmatrix} 2 & -3 \\ -4 & 7 \end{bmatrix}$, compute A^{-1} and hence show that $2A^{-1} = 9I - A$

Q. If $A^{-1} = \frac{1}{10}\begin{bmatrix} 10 & -10 & 2 \\ 0 & 5 & -4 \\ 0 & 0 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & -1 & 2 \\ 0 & 2 & -3 \\ 3 & -2 & 4 \end{bmatrix}$, find $(BA)^{-1}$

Q. If $A = \begin{bmatrix} 2 & -3 \\ 4 & 6 \end{bmatrix}$, verify that $(\text{adj } A)^{-1} = \text{adj}(A^{-1})$

Q. If $A = \begin{bmatrix} 4 & 3 \\ 2 & 5 \end{bmatrix}$, find x and y such that $A^2 - xA + y\,I = 0$

BIOLOGY

Chapters Covered

- **Chapter 1: Sexual Reproduction in Flowering Plants**
- **Chapter 2: Human Reproduction**

Instructions:

- ☞ Complete all tasks in a neat biology notebook.
- ☞ Diagrams must be labelled and drawn with a pencil.
- ☞ Use bullet points or short paragraphs for theory.
- ☞ Submit after the summer vacation.

Part A: Sexual Reproduction in Flowering Plants

1. **Short Answer Questions (60–80 words):**
   - ❖ Explain the structure and function of the anther.
   - ❖ Describe the process of double fertilization.
   - ❖ Write the role of tapetum in the development of pollen grains.
   - ❖ Define megasporogenesis. Draw the stages of embryo sac development.
2. **Diagram Practice:**
   - ❖ Longitudinal section of a flower
   - ❖ T. S. of an anther (4-lobed)
   - ❖ Structure of ovule
   - ❖ Development of embryo sac (Female Gametophyte)
3. **Activity:**
   - ❖ Make a comparative table of self-pollination and cross-pollination with examples and advantages/disadvantages.
   - ❖ Prepare a chart explaining the agents of pollination (insects, wind, water, animals) with examples.

Part B: Human Reproduction

1. **Short Answer Questions (60–100 words):**
   - ❖ Describe the structure and function of the human male reproductive system.
   - ❖ Explain the phases of the menstrual cycle.
   - ❖ What is spermatogenesis? Explain with a labeled diagram.
   - ❖ Describe the process of fertilization in humans.
2. **Diagram Practice:**

- ❖ Male reproductive system
- ❖ Female reproductive system
- ❖ L. S. of seminiferous tubule
- ❖ Graph of menstrual cycle (with hormones and events)

3. **Activity Work:**
   - ❖ Create a flowchart showing the journey of sperm from its formation to fertilization.
   - ❖ Make a model or detailed labelled chart of the female reproductive system.

Business Studies

Short Answer Questions

1. What is the significance of management in an organization?
2. Explain the principle of "Unity of Command".
3. Discuss the importance of "Division of Work" in management.
4. What is the difference between "Efficiency" and "Effectiveness" in management?
5. Explain the concept of "Business Environment" and its component.

Long Answer Questions

6. Discuss the significance of management in achieving organizational objectives.
7. Explain the 14 principles of management given by Henri Fayol.
8. Analyze the impact of external factors on business environment.

Case Study

9. Read the following case study and answer the questions:
   Case Study: A company is facing a decline in sales due to changes in consumer preferences. Analyze the situation and suggest strategies to improve sales.

Application-Based Questions

10. Suppose you are a manager of a company. How would you apply the principle of "Scalar Chain" in your organization?
11. Identify and explain the external factors affecting a business organization in the current scenario.

Project Work

12. Prepare a project report on the impact of business environment on a specific industry/organization.

Accountancy

Partnership Fundamentals (10 questions)

1. A and B are partners sharing profits in the ratio 3:2. If the total profit is ₹50,000, find A's share.
2. X, Y, and Z are partners with capitals ₹30,000, ₹20,000, and ₹10,000. If the profit is ₹12,000, find Z's share.
3. A partnership firm earned a profit of ₹80,000. If the profit-sharing ratio is 2:3:5 among A, B, and C, find B's share.
4. A and B are partners with a profit-sharing ratio of 3:2. If A's capital is ₹40,000 and B's capital is ₹30,000, find the interest on capital @ 10% p.a.
5. X and Y are partners sharing profits equally. If X's drawings are ₹10,000 and Y's drawings are ₹8,000, find the interest on drawings @ 12% p.a.

6. A partnership firm has 3 partners – A, B, and C. If the profit-sharing ratio is 2:3:5 and the total profit is ₹1,00,000, find C's share.
7. A and B are partners with capitals ₹50,000 and ₹30,000. If the profit is ₹24,000, find A's share if the profit-sharing ratio is 3:2.
8. X, Y, and Z are partners sharing profits in the ratio 4:3:2. If the total profit is ₹90,000, find Y's share.
9. A partnership firm earned a profit of ₹60,000. If the profit-sharing ratio is 3:2 among A and B, find A's share.
10. A and B are partners with a profit-sharing ratio of 2:3. If A's capital is ₹30,000 and B's capital is ₹40,000, find B's share of profit if the total profit is ₹28,000.

Goodwill Valuation (10 questions)

11. A firm's average profit is ₹20,000. If the normal rate of return is 10%, find the value of goodwill @ 3 years' purchase of super profit.
12. X and Y are partners sharing profits equally. The firm's goodwill is valued at ₹30,000. If X retires, find the amount of goodwill to be adjusted.
13. A firm's goodwill is valued at ₹50,000. If the profit-sharing ratio is 3:2 among A and B, find the amount of goodwill to be credited to A's capital account if B retires.
14. A firm's average profit is ₹30,000. If the normal rate of return is 12%, find the value of goodwill @ 2 years' purchase of super profit.
15. X, Y, and Z are partners sharing profits in the ratio 2:3:5. The firm's goodwill is valued at ₹40,000. Find the amount of goodwill to be adjusted if Y retires.
16. A firm's goodwill is valued at ₹60,000. If the profit-sharing ratio is 4:3:2 among A, B, and C, find the amount of goodwill to be credited to B's capital account if C retires.
17. A firm's average profit is ₹25,000. If the normal rate of return is 10%, find the value of goodwill @ 2 years' purchase of super profit.
18. X and Y are partners sharing profits equally. The firm's goodwill is valued at ₹20,000. If X dies, find the amount of goodwill to be adjusted.
19. A firm's goodwill is valued at ₹80,000. If the profit-sharing ratio is 3:2:5 among A, B, and C, find the amount of goodwill to be credited to A's capital account if C retires.
20. A firm's average profit is ₹35,000. If the normal rate of return is 15%, find the value of goodwill @ 3 years' purchase of super profit.

Change in Profit Sharing Ratio (10 questions)

21. A, B, and C are partners sharing profits in the ratio 2:3:5. They decide to share profits equally. Find the sacrificing ratio.
22. X and Y are partners sharing profits in the ratio 3:2. They decide to share profits equally. Find the gaining ratio.
23. A, B, and C are partners sharing profits in the ratio 4:3:2. They decide to share profits in the ratio 2:3:4. Find the sacrificing/gaining ratio.
24. X, Y, and Z are partners sharing profits in the ratio 3:2:1. They decide to share profits equally. Find the amount of goodwill to be adjusted
25. A and B are partners sharing profits in the ratio 3:2. They decide to share profits equally. Calculate the new profit-sharing ratio and sacrificing/gaining ratio.
26. X, Y, and Z are partners sharing profits in the ratio 4:3:2. They decide to share profits in the ratio 2:3:4. Calculate the sacrificing/gaining ratio.
27. A, B, and C are partners sharing profits in the ratio 2:3:5. They decide to share profits equally. Calculate the new profit-sharing ratio and sacrificing/gaining ratio.

28. A and B are partners sharing profits in the ratio 5:3. A surrenders 1/5th of his share and B surrenders 1/3rd of his share in favor of C, a new partner. Calculate the new profit-sharing ratio.
29. X and Y are partners sharing profits in the ratio 3:2. They decide to share profits in the ratio 2:3. Calculate the sacrificing/gaining ratio and pass the necessary journal entry
30. A, B, and C are partners sharing profits in the ratio 3:2:1. They decide to share profits equally. Calculate the new profit-sharing ratio and sacrificing/gaining ratio, and pass the necessary journal entry.

Economics

Prepare a project report on the topic " money and banking" with following sub heading:

(a) Introduction
(b) Barter system
(c) Function of money
(d) Definition of money
(e) Money supply
(f) Commercial bank
(g) Function of commercial bank
(h) Central Bank
(i) Function of central bank
(j) Central Bank Vs commercial bank

Art Integrated Multidisciplinary Project

Theme : "Sustainable Living: A Scientific and Economic Perspective Inspired by Indian Culture"

*(Linked with the art and cultural heritage of **Rajasthan** – architecture, lifestyle, and traditional water conservation methods)*

Project Overview :

Students will explore how traditional Indian systems, especially in Rajasthan, promoted **sustainability, health, and economy**. The project integrates **science, commerce, humanities, and art** to investigate eco-friendly practices, economic efficiency, and wellness through an interdisciplinary lens.

1. English Core

Topic: Sustainable Living in Literature and Communication

- Write an essay/article on "Lessons from Traditional Indian Living for a Sustainable Future".
- Develop a script for a street play promoting eco-conscious habits, inspired by Rajasthani folk drama.

- Analyze sustainability themes in Indian authors' writings.

2. Yoga

Topic: Yoga as a Tool for Sustainable Mental and Physical Health

- Demonstrate yoga routines that help manage modern lifestyle stress.
- Include traditional asanas suited for hot, dry climates.
- Create a visual schedule or video tutorial with benefits.

3. Hindi Core *(Alternative: Physical Education below)*

Topic: निबंध लेखन / भाषण - "पर्यावरण संरक्षण में भारतीय परंपराओं की भूमिका"

- संवाद लेखन / नाटक - पानी बचाने या जैविक खेती पर आधारित।
- लोक साहित्य में पर्यावरण की चिंता का चित्रण।

4. Physical Education *(Alternative to Hindi)*

Topic: Physical Fitness and Traditional Lifestyles

- Study the physical activities involved in rural Rajasthani lifestyles.
- Analyze caloric expenditure and fitness outcomes from these traditional routines.
- Compare with modern sedentary lifestyles.

5. Physics

Topic : Energy Efficiency in Traditional Architecture

- Study the thermal insulation in Rajasthan havelis and their physics-based design.
- Create models or simulations showing heat transfer minimization.
- Compare energy consumption in traditional vs. modern buildings.

6. Chemistry

Topic: Use of Eco-friendly Construction and Cleaning Materials

- Analyze the chemical composition of traditional lime plaster and natural cleaning agents used in Indian homes.
- Explore the benefits of organic, non-toxic materials.
- Create an experiment comparing chemical and organic materials' effects on the environment.

7. Mathematics *(Alternative: Biology below)*

Topic: Statistical Analysis of Resource Usage

- Use data sets to analyze water and electricity consumption in modern vs. traditional homes.
- Apply geometry and trigonometry to traditional architectural designs (e.g., jaali patterns).
- Create graphs and cost-benefit analysis.

8. Biology *(Alternative to Mathematics)*

Topic: Role of Medicinal Plants and Traditional Diets in Sustainable Health

- Study indigenous medicinal herbs used in Rajasthan.
- Analyze the biological impact of plant-based, seasonal diets on immunity and climate resilience.
- Prepare a herbarium or infographic of common regional medicinal plants.

9. Business Studies

Topic: Eco-Friendly Entrepreneurship Inspired by Rajasthan

- Study local Rajasthani handicrafts, sustainable tourism, and organic farming as business models.
- Create a business plan for a sustainable start-up using local resources.
- Highlight marketing and eco-labeling strategies.

10. Accountancy

Topic : Financial Records of a Sustainable Business

- Prepare ledger entries, trial balance, and financial statements for the business idea developed in Business Studies.
- Compare costs of sustainable vs. conventional materials and processes.
- Show break-even analysis.

11. Economics

Topic : The Economics of Sustainability

- Analyze the impact of climate change on rural Rajasthani economies.
- Study government schemes promoting green living (e.g., PM Kusum, solar subsidies).
- Use diagrams and data to show economic benefits of sustainability.

Integration of Art :

- Mandana art, miniature paintings, Rajasthani folk music/dance.
- Visuals: Charts, rangolis, infographics, collages of sustainable practices.
- Performances: Nukkad Natak, folk songs with sustainability messages.

Final Project Structure (As per CBSE) :

- **Cover Page – With Title, Name, Roll No., Class**
- **Index**
- **Acknowledgment**
- **Objectives**
- **Introduction to the Theme**
- **Rajasthan Section**
- **Subject-wise Activities (one section per subject)**
- **Art Work Documentation (photos, sketches, prints)**
- **Individual Subject Reflections (What You Learned)**
- **Conclusion**
- **Bibliography**
- **Rubric-based Evaluation (Creativity, Subject Integration, Research, Presentation)**

Assessment Rubric (CBSE Guidelines – 40 Marks Total)

Criteria	Marks
Subject Integration (2+)	10
Art and Cultural Linkage	10
Creativity and Aesthetics	10
Presentation & Effort	5
Research & Reflection	5
Total	**40**

Dear Children

- ☞ **The homework has to be done separately subject wise in note books, beautifully.**
- ☞ **Enjoy the activities given. Do not rush to complete in one go.**

Some Every Day Tasks:

- *Clean your room and keep it neat and tidy.*
- *Help your mother in the kitchen.*
- *Lay the table*
- *Walk, jog, exercise and keep fit.*
- *Be creative do some drawing and painting.*