

VAISH MODEL SR. SEC. SCHOOL, BHIWANI

Summer Vacation Home Assignment

Session : 2024-25

Class : XI

English

1. Draft classified Advertisements on the following topics :
 - (a) Furniture for sale
 - (b) Situation Vacant
 - (c) Change of Name
 - (d) To Let
 - (e) House for Sale
2. Write notes on the following topics in 150 words each :
 - (a) Life of the grandmother (The Pertrait of a Lady)
 - (b) Importance of optimism and courage in the difficult situations (We're not Afraid to Die.....)
 - (c) Affect of war in the lives of people (The Address)
 - (d) Importance of honesty and integrity in lives (The summer of the Beautiful White Horse)

(Note : Do all the above assignments in a separate notebook)

Hindi

1. आरोह भाग-1 : गद्य खंड पाठ-1 : नमक का दारोगा (प्रेमचंद)
पाठ-2 : मियाँ नसीरुद्दीन (कृष्णा सोबती)
पद्य खंड : पाठ-1 : कबीर (हम तौ एक-एक करि जानां)
पाठ-2 : मीरा (मेरे तो गिरधर गोपाल, दूसरो न कोई)
2. वितान भाग-1 : पाठ-1 भारतीय गायिकाओं में बेजोड़ लता मंगेशकर (कुमार गंधर्व)
उपर्युक्त पाठ याद कीजिए एवं प्रत्येक पाठ से पाँच-पाँच प्रश्न स्वयं बनाकर अपनी उत्तर पुस्तिका में लिखिए।
3. अपनी व्याकरण की पुस्तक से 10 अपठित गद्यांश एवं 10 पद्यांश को ध्यानपूर्वक पढ़कर उनके प्रश्नों को हल कीजिए एवं उनके उत्तर अपनी उत्तरपुस्तिका में लिखिए।
4. 'जनसंचार माध्यम' पाठ ध्यानपूर्वक पढ़िए एवं उससे संबंधित सभी प्रश्नोंत्तर याद कीजिए।
5. सरस्वती हिन्दी व्याकरण पुस्तक से 'जनसंचार माध्यम' विषय ध्यानपूर्वक पढ़कर उसमें से किन्हीं तीन माध्यमों को लेकर सचित्र परियोजना तैयार कीजिए।

Mathematics

1. Solve the worksheet given to you along with the homework paper in separate notebook.
2. Make a chart or model on any Mathematical topic of your choice using craft material.

Music

1. निम्नलिखित परिभाषाओं को अपनी प्रैक्टिकल फाईल में लिखिए व याद कीजिए।
नाद, श्रुति, स्वर, सप्तक
2. राग बिहाग का शास्त्रीय परिचय तथा द्रुत ख्याल की स्वरलिपि लिखिए व याद कीजिए।
3. ताल तीनताल का शास्त्रीय परिचय, ताल नोटेशन ठाह (एकगुन) एवं दुगुन लयकारी सहित लिखें व याद करें।
4. मियाँ तानसेन का सचित्र जीवन परिचय अपनी प्रैक्टिकल फाईल में लिखें व याद करें।

Painting

1. Make any two composition sheet on A2 size. (sheet)
2. Make any one drawing on A2 size sheet (pen & ink drawing or pencil shading)

Computer Science

- 1) Read and Learn chapter covered upto summer vacation.
- 2) Solved Practical Book from Page No. 3 upto 25.
- 3) Write and draw solved examples of flow chart of chapter 4 in fair notebook.
- 4) Solve Type B Application Based Questions of chapter 2 data representation.
- 5) Learn & Read case study based questions of Unit I.
- 6) Draw problem solving cycle at Drawing sheet.

Physics

1. Complete Note Book and Practical Note Book.
2. Make paper scale of least count 0.2 cm of 15 cm.
3. Triangle law of vector addition, equations of motion, (Graphical Method), Distance covered in nth sec, Graphical Representation of Uniform Motion and Uniform acceleration motion (x-t, v-t and a-t Graph), Projectile Motion – (Horizontal and angular projection)
Derive all the above Topics in fair Notebook.

Chemistry

1. Learn and revise upto the syllabus completed in class.
2. Complete your Class Note Book and Practical Record File.
3. Learn periodic table (Elements with atomic number 1 to 40)

Biology

1. Learn chapter 1 and 2.
2. Write dark inked definition of chapter 1, 2 and 3 in your fair Notebook.
3. Depict life cycle of Bryophytes (liverworts, mosses), pteridophytes and gymnosperms.
4. Draw diagram of the followings :
TMV, Bacteriophage, marchantia, funaria, Nonstoc.

Political Science

Learn these lesson :

Lesson-1 : Constitution : Why and How? (संविधान : क्यों और कैसे)

Lesson-2 : Rights in the Indian constitution (भारतीय संविधान में अधिकार)

Make a project on fundamental Rights (with Amendments)

मौलिक अधिकारों पर एक परियोजना तैयार कीजिए (संशोधनों सहित)

Make scrap book on current National and international news.

वर्तमान राष्ट्रीय और अन्तर्राष्ट्रीय समाचारों पर एक scrap book तैयार कीजिए।

Geography

1. Learn Que/Ans. Part-2

Ch-2 : Structure and Physiography (संरचना तथा भू-आकृति विज्ञान)

Part-2

Ch-3 : Drainage Pattern (अपवाह तंत्र)

Read the chapter and find out 20 Q/Ans. and write these of Q/Ans. in Note book.

Part-1

Ch-3 : Interior of the earth (पृथ्वी की आंतरिक संरचना)

Prepare a chart on interior of the earth fig.no. 3.1 from the chapter

History

Learn the following lesson :

1. Lesson-1 : Writing and city life (लेखन कला और शहरी जीवन)

2. Lesson-2 : An Empire Across Three Continents (तीन महाद्वीपों में फैला हुआ साम्राज्य)

3. Lesson-3 : Nomadic Empires (यायावर साम्राज्य)

Economics

1. Do all the three and four marks questions from Lesson no 1 to 4 in Micro Economics and questions of Lesson No. 1 from Statistics in separate notebook.

Business Studies

1. Learn Unit No.-2 (Forms of Business organizations)

2. Prepare a Chart on any one of the following topics :

(a) Types of Industries

(b) Aids to Trade

(c) Types of Cooperative Societies

Accountancy

1. Complete your notebook with following chapter (Including Practical and additional questions given in chapters)
Lesson – 6 : Accounting Equation
Lesson – 9 : Journal Entries
Lesson – 10 : Goods and Service Tax Accounting
Lesson – 11 : Cash Book
2. Learn all accounting terms with examples given in Lesson-2.
3. Prepare a project File with atleast 30 business transactions – Prepare Journal Entries in the project file for these transactions.

XI - Maths
Worksheet - 1

Very short answer questions (1 to 3):

- Convert the following products into sums or differences:
(i) $2 \sin 3x \cos 2x$ (ii) $2 \cos 3x \sin 2x$ (iii) $2 \sin 4x \sin 2x$ (iv) $2 \cos 7x \cos 3x$.
- Express each of the following as the product of sines and cosines:
(i) $\sin 10x + \sin 6x$ (ii) $\sin 9x - \sin 3x$ (iii) $\cos 12x + \cos 4x$ (iv) $\cos 13x - \cos 7x$.
- Prove that:
(i) $2 \cos 45^\circ \cos 15^\circ = \frac{\sqrt{3} + 1}{2}$ (ii) $2 \sin \frac{5\pi}{12} \sin \frac{\pi}{12} = \frac{1}{2}$.

Short answer questions (4 to 7):

- Prove that:
(i) $\sin 80^\circ - \cos 70^\circ = \cos 50^\circ$ (ii) $\cos 5^\circ - \sin 25^\circ = \sin 35^\circ$
(iii) $\sin 36^\circ + \cos 36^\circ = \sqrt{2} \cos 9^\circ$ (iv) $\cos 15^\circ - \sin 15^\circ = \frac{1}{\sqrt{2}}$.

Hint. (iii) $\sin 36^\circ = \sin (90^\circ - 54^\circ) = \cos 54^\circ$.

- Prove that:
(i) $\frac{\sin 5x + \sin 3x}{\cos 5x + \cos 3x} = \tan 4x$ (ii) $\frac{\cos 7x + \cos 5x}{\sin 7x - \sin 5x} = \cot x$
(iii) $\frac{\sin x + \sin y}{\cos x + \cos y} = \tan \frac{x+y}{2}$ (iv) $\frac{\sin x - \sin y}{\cos x + \cos y} = \tan \frac{x-y}{2}$.

6. Prove that

- (i) $\frac{\cos 20^\circ - \cos 70^\circ}{\sin 70^\circ - \sin 20^\circ} = 1$ (ii) $\frac{\sin 75^\circ - \sin 15^\circ}{\cos 75^\circ + \cos 15^\circ} = \frac{1}{\sqrt{3}}$.

7. Prove that:

- (i) $\sin \left(\frac{\pi}{4} + x \right) \sin \left(\frac{\pi}{4} - x \right) = \frac{1}{2} \cos 2x$ (ii) $\sec \left(\frac{\pi}{4} + x \right) \sec \left(\frac{\pi}{4} - x \right) = 2 \sec 2x$
(iii) $\sin \left(\frac{5\pi}{6} + x \right) + \sin \left(\frac{5\pi}{6} - x \right) = \cos x$.

Long answer questions (8 to 19):

8. Prove that:

(i) $\cos 7x + \cos 5x + \cos 3x + \cos x = 4 \cos x \cos 2x \cos 4x$

(ii) $\sin x + \sin 2x + \sin 4x + \sin 5x = 4 \cos \frac{x}{2} \cos \frac{3x}{2} \sin 3x$

(iii) $\cos 3x + \cos 5x + \cos 7x + \cos 15x = 4 \cos 4x \cos 5x \cos 6x$

(iv) $\cos x \cos \frac{x}{2} - \cos 3x \cos \frac{9x}{2} = \sin 4x \sin \frac{7x}{2}$. (Exemplar)

9. Prove that:

(i) $\cos 52^\circ + \cos 68^\circ + \cos 172^\circ = 0$

(ii) $\cos 20^\circ + \cos 100^\circ + \cos 140^\circ = 0$

(iii) $2 \sin \frac{\pi}{17} \sin \frac{11\pi}{17} - \cos \frac{5\pi}{17} + \cos \frac{7\pi}{17} = 0$.

10. Prove that:

(i) $\sin 10^\circ \sin 50^\circ \sin 70^\circ = \frac{1}{8}$

(ii) $\sin 10^\circ \sin 30^\circ \sin 50^\circ \sin 70^\circ = \frac{1}{16}$

(iii) $\sin 20^\circ \sin 40^\circ \sin 60^\circ \sin 80^\circ = \frac{3}{16}$.

11. Prove that:

(i) $\cos 20^\circ \cos 40^\circ \cos 60^\circ \cos 80^\circ = \frac{1}{16}$

(ii) $\cos 10^\circ \cos 30^\circ \cos 50^\circ \cos 70^\circ = \frac{3}{16}$.

12. Prove that: $\tan 10^\circ \tan 50^\circ \tan 70^\circ = \tan 30^\circ$.

13. Prove that:

(i) $\cos x + \cos \left(\frac{2\pi}{3} - x \right) + \cos \left(\frac{2\pi}{3} + x \right) = 0$

(ii) $\cos \frac{\pi}{8} + \cos \frac{3\pi}{8} + \cos \frac{5\pi}{8} + \cos \frac{7\pi}{8} = 0$.

14. Prove that:

(i) $4 \sin x \sin \left(\frac{\pi}{3} - x \right) \sin \left(\frac{\pi}{3} + x \right) = \sin 3x$

(ii) $4 \cos x \cos \left(\frac{\pi}{3} - x \right) \cos \left(\frac{\pi}{3} + x \right) = \cos 3x$.

15. Prove that:

(i) $(\cos x + \cos y)^2 + (\sin x + \sin y)^2 = 4 \cos^2 \frac{x-y}{2}$

(ii) $(\cos x + \cos y)^2 + (\sin x - \sin y)^2 = 4 \cos^2 \frac{x+y}{2}$

(iii) $\sin^2 x + \sin^2 (x-y) - 2 \sin x \cos y \sin (x-y) = \sin^2 y$.

16. Prove that:

(i) $\frac{\sin x + \sin y}{\sin x - \sin y} = \tan \frac{x+y}{2} \cot \frac{x-y}{2}$

(ii) $\frac{\sin x + \sin 3x + \sin 5x}{\cos x + \cos 3x + \cos 5x} = \tan 3x$

(iii) $\frac{\sin 5x + 2 \sin 8x + \sin 11x}{\sin 8x + 2 \sin 11x + \sin 14x} = \frac{\sin 8x}{\sin 11x}$

(iv) $\frac{\sin 8x \cos x - \sin 6x \cos 3x}{\cos 2x \cos x - \sin 3x \sin 4x} = \tan 2x$.

17. Prove that: $\cos \alpha + \cos \beta + \cos \gamma + \cos (\alpha + \beta + \gamma) = 4 \cos \frac{\alpha + \beta}{2} \cos \frac{\beta + \gamma}{2} \cos \frac{\gamma + \alpha}{2}$.

18. If $\cos x + \cos y = \frac{1}{3}$ and $\sin x + \sin y = \frac{1}{4}$, prove that $\tan \frac{x+y}{2} = \frac{3}{4}$.

19. (i) If $\frac{\sin(x+y)}{\sin(x-y)} = \frac{a+b}{a-b}$, then show that $\frac{\tan x}{\tan y} = \frac{a}{b}$.

(Exemplar)

(ii) If $\cos(x+2y) = m \cos x$, prove that $\cot y = \frac{1+m}{1-m} \tan(x+y)$.

Very short answer questions (1 to 3):

Worksheet - 2

1. If $\sin x = \frac{2}{3}$, find the value of $\cos 2x$.
2. If $\cos x = -\frac{2}{5}$, find the value of $\cos 2x$.
3. If $\tan x = \frac{1}{2}$, find the values of:
 - (i) $\tan 2x$
 - (ii) $\sin 2x$
 - (iii) $\cos 2x$.

Short answer questions (4 to 10):

4. If $\sin x = \frac{2}{3}$, find the value of $\sin 3x$.
5. If $\cos x = -\frac{2}{5}$, find the value of $\cos 3x$.
6. Prove that:
 - (i) $\cos 2x + 2 \sin^2 x = 1$
 - (ii) $(\cos x - \sin x)^2 = 1 - \sin 2x$
 - (iii) $\frac{\cos 2x}{\cos x - \sin x} = \cos x + \sin x$.

7. Prove that:

- (i) $\frac{\sin 2x}{1 + \cos 2x} = \tan x$
- (ii) $\frac{\sin 2x}{1 - \cos 2x} = \cot x$
- (iii) $\frac{1 - \cos 2x}{1 + \cos 2x} = \tan^2 x$
- (iv) $\frac{1 + \sin 2x - \cos 2x}{1 + \sin 2x + \cos 2x} = \tan x$.

8. Prove that:

- (i) $\frac{\cos^3 x - \sin^3 x}{\cos x - \sin x} = \frac{1}{2}(2 + \sin 2x)$
- (ii) $\frac{1 - \cos 2x + \sin x}{\sin 2x + \cos x} = \tan x$.

9. Evaluate without using tables:

- (i) $2 \cos 22\frac{1}{2}^\circ \sin 22\frac{1}{2}^\circ$
- (ii) $2 \cos^2 15^\circ - 1$
- (iii) $8 \cos^3 20^\circ - 6 \cos 20^\circ$
- (iv) $3 \sin 40^\circ - 4 \sin^3 40^\circ$.

10. Prove that:

- (i) $\cos \frac{\pi}{5} + \cos \frac{3\pi}{5} = \frac{1}{2}$
- (ii) $\sin^2 24^\circ - \sin^2 6^\circ = \frac{\sqrt{5}-1}{8}$
- (iii) $\sin^2 72^\circ - \sin^2 60^\circ = \frac{\sqrt{5}-1}{8}$
- (iv) $\sin^2 72^\circ - \cos^2 30^\circ = \frac{\sqrt{5}-1}{8}$.

Hint. (iii) L.H.S. = $\sin^2 (90^\circ - 18^\circ) - \left(\frac{\sqrt{3}}{2}\right)^2 = \cos^2 18^\circ - \frac{3}{4}$

$$= \frac{1 + \cos 36^\circ}{2} - \frac{3}{4} = \frac{1}{2} \left(1 + \frac{\sqrt{5}+1}{4} \right) - \frac{3}{4}$$

Long answer questions (11 to 26):

11. Prove that $\cos x \cos 2x \cos 4x \cos 8x = \frac{\sin 16x}{16 \sin x}$.

12. Prove that $\frac{\cos x + \sin x}{\cos x - \sin x} - \frac{\cos x - \sin x}{\cos x + \sin x} = 2 \tan 2x$.

13. Prove that $1 + \cos^2 2x = 2(\cos^4 x + \sin^4 x)$.

14. Prove that:

(i) $\cot \frac{x}{2} - \tan \frac{x}{2} = 2 \cot x$

(ii) $\sqrt{\frac{1 + \sin x}{1 - \sin x}} = \tan \left(\frac{\pi}{4} + \frac{x}{2} \right)$

(iii) $\tan \left(\frac{\pi}{4} + \frac{x}{2} \right) = \tan x + \sec x$.

15. Prove that $\tan x + \cot x = 2 \operatorname{cosec} 2x$ and deduce that $\tan 75^\circ + \cot 75^\circ = 4$.

16. Prove that:

(i) $\tan x + \tan \left(\frac{\pi}{3} + x \right) + \tan \left(\frac{2\pi}{3} + x \right) = 3 \tan 3x$

(ii) $\cos x \cos \left(\frac{\pi}{3} - x \right) \cos \left(\frac{\pi}{3} + x \right) = \frac{1}{4} \cos 3x$.