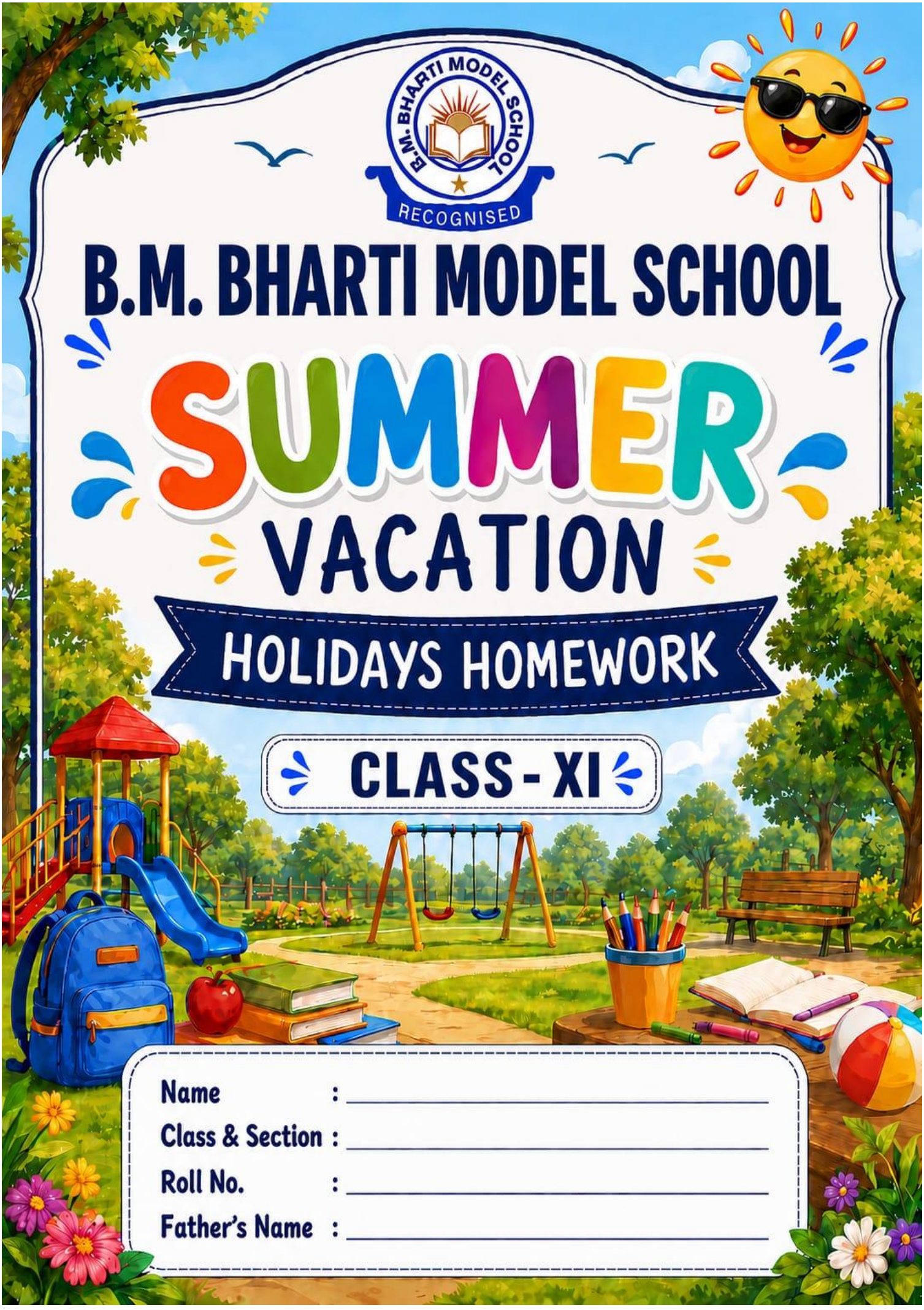

B.M. BHARTI MODEL SCHOOL

SUMMER VACATION

HOLIDAYS HOMEWORK

CLASS - XI

Name : _____

Class & Section : _____

Roll No. : _____

Father's Name : _____

☀INSTRUCTIONS FOR STUDENTS DURING SUMMER HOLIDAY HOMEWORK ☀

Dear Students,

Summer vacation is a time to relax, refresh, and enjoy with family and friends. Along with fun and recreation, complete your holiday homework sincerely and neatly. Follow these instructions carefully:

1. **Complete all work on time and submit it after the vacation.**
2. **Maintain neatness and proper presentation in every subject.**
3. **Use your own handwriting and avoid copying from others.**
4. **Read all instructions carefully before starting the work.**
5. **Make your work creative, colourful, and attractive wherever required.**
6. **Revise the work done in class regularly during the holidays.**
7. **Spend some time daily in reading books, newspapers or storybooks.**
8. **Practice good handwriting and learn new words every day.**
9. **Parents are requested to guide and encourage students, but the work should be done by the students themselves.**
10. **Keep all notebooks and holiday homework sheets properly covered and labelled.**
11. **Do worksheet on worksheet itself.**
12. **Maintain discipline and balance studies with play, exercise, and rest**
13. **Take care of your health, eat healthy food, and stay hydrated during summer.**
14. **Enjoy your holidays and return to school with fresh energy and enthusiasm.**

English

1. Art Integration Project: Create a handmade project comparing English authors of Sikkim with your own state.

2. Literature Focus: compare character sketch of your grandmother with authors's grand mother inspired from "The Portrait of a Lady" (using artistic & creative illustrations).

3. Writing Skills: Draft a speech on "The Importance of Mental Health for Students" and design a poster on "Save Earth".

4. Daily Task: Write a 10-day daily journal reflecting on personal feelings and activities during the break.

Grammar worksheet

Section A: Gap Filling

Complete the following passages by choosing the most appropriate words from the options provided.

Passage 1: Dialogue Practice

Alka: (i) _____ you sing well?

Manisha: No, I (ii) _____ not, but I (iii)_____ dance well.

Alka: But you (iv)_____ sing well when you were a child.

(i) (a) May (b) Can (c) Will (d) Shall
(ii) (a) can (b) may (c) shall (d) will
(iii) (a) could (b) might (c) can (d) would
(iv) (a) would (b) could (c) must (d) might

Passage 2: Factual Description

President Abdul Kalam was born in (i)_____ middle-class Tamil family in (ii)_____ island town of Rameshwaram in (iii)_____ erstwhile Madras State. (iv)_____ father, Jainulabdeen, had neither (v)_____ formal education nor (vi)_____ wealth.

(i) (a) a (b) an (c) the (d) some
(ii) (a) a (b) an (c) the (d) many
(iii) (a) a (b) an (c) the (d) much
(iv) (a) his (b) her (c) the (d) an
(v) (a) any (b) an (c) the (d) many
(vi) (a) any (b) some (c) few (d) a few

Section B: Sentence Reordering

Rearrange the following jumbled words and phrases to make meaningful sentences.

1) necessary / is / exercise / for / everyone's / good health.

2) for / sleepwalkers / anxiety / source / a / are / of / families / their.

3) advertising / in Africa / aiming / below 12 years / America / and / not / is / permitted / at children / of age.

4)for / man has been exploiting / many / the / earth / years.

5) Sachin Tendulkar / Ambassador / has / been / named as the Rio Olympics' Brand.

6) permitted / at children / not / is / below 12 years / of age / advertising.

Section C: Error Correction

Identify and correct the grammatical errors in the following sentences.

1) The sceneries of Ooty are very charming.

2) Each of the four boys are clever.

3) I and John are friends.

4) He is wiser than me.

5) It is raining for the last four days.

Section D: Sentence Transformation

Rewrite the following sentences as directed in the brackets.

1) She is too weak to walk. (Rewrite using 'so...that')

2) As soon as he arrived, it started raining. (Begin with 'No sooner')

3) He confessed that he was guilty. (Change into a simple sentence)

4) Iron is the most useful of all metals. (Change into comparative degree)

5) The teacher explained the lesson clearly. (Change into passive voice)

Section E: Omission Practice

In the passage below, one word has been omitted in each line. Identify the missing word and write the word before and after it.

	Passage	Before Missing	After
1. The sun the most important source	(a) _____	_____	_____
2. of energy living beings.	(b) _____	_____	_____
3. Plants prepare food the help	(c) _____	_____	_____
4. of sunlight. Human beings also	(d) _____	_____	_____
5. need sunlight Vitamin D.	(e) _____	_____	_____

Section F: Reported Speech

Convert the following direct speech into indirect speech.

1) The teacher said to the boys, "Have you done your homework?"

2) Janaki said, "I have been reading this book."

3) "Why haven't you phoned me?" he asked me.

4) The doctor said to me, "Stop smoking!"

5) "Will you help me?" the little girl asked the man.

Physical Education

Lab Manual

Practical— 1 (Sai Khelo India Test)

A- Body Mass Index
B- Plate Tapping Test
C- Flamingo Balance Test
D- Partial Curl Up
E- push Ups / Modified push Ups
F- Sit and Reach
G- 600 Mtr Run/ Walk
H- 50 Mtr Dash (standing start)

Practical— 2 (Games and sports)

Any one IOA recognized sports
A- history of sports
B- Latest General Rules
C- Fundamental skills of game
D- Terminology

Practical— 3

Yogic exercise

A- Obesity
B- Diabetes
C- Asthma
D- Hypertension
E- Backpane and Arthritis

विषय- हिन्दी

परियोजना कार्य:-

<u>गद्य खंड:</u>

1. प्रेमचंद जी का जीवन परिचय, रचनाएं, शिक्षा, साहित्यिक विशेषताएं।
2. ओमप्रकाश वाल्मिकी जी का सम्पूर्ण जीवन परिचय, शिक्षा, जीवन, शैली विशेषताएं।

<u>काव्य खंड:-</u>

1. कबीर दास का सम्पूर्ण जीवन काल का वर्णन करो।
2. महादेवी वर्मा जी के सम्पूर्ण जीवन काल का वर्णन करो।

<u>अभिव्यक्ति और माध्यम तथा रचनात्मक लेखन</u>

निबंध लेखन कार्य:-

1. साइबर सुरक्षा ।
2. एक भारत श्रेष्ठ भारत
3. चुनावों में सोशल मीडिया की भूमिका ।
4. ऑनलाइन स्केम

पत्र लेखन :-

1. अपने मोहल्ले में घूमने वाले आवारा जानवरों से सुरक्षा हेतू नगर-निगम अधिकारी को पत्र ।

2. आपके इलाके में असामाजिक तत्वो को नियंत्रित एवं रोकथाम के लिए पुलिस निरीक्षक को एक शिकायती पत्र लिखो।

Political Science

•Read and revise the chapter taught in the class.

•Write and decorate the Preamble of the Indian Constitution on an A4 sheet with creative borders and symbols and paste it in your notebook.

•Paste pictures and write short notes in your notebooks on Constitution makers like:

1. B. R. Ambedkar
2. Jawaharlal Nehru
3. Rajendra Prasad

•Solve the given assignment and write their answers in your notebook:-

1.Explain any three functions of Political Theory.

2.Why do we need a Constitution?

3.Mention any three features of the Indian Constitution.

4.Explain the importance of Fundamental Rights.

5.Differentiate between Rights and Duties.

6.What is the significance of the Preamble?

7.Discuss the importance of Political Theory in modern society.

8.Explain the Fundamental Rights given in the Indian Constitution.

Assertion and Reason Based Questions

Choose the correct option:

A. Both Assertion (A) and Reason (R) are true and R is the correct explanation of A.
B. Both A and R are true but R is not the correct explanation of A.
C. A is true but R is false.
D. A is false but R is true.

1.Assertion (A): A Constitution is necessary for every democratic country.
Reason (R): It provides rules and principles for governance.

2.Assertion (A): Fundamental Rights are essential for citizens.
Reason (R): They protect the freedom and equality of individuals.

3. **Assertion (A):** Political Theory helps people understand political ideas.
Reason (R): It studies concepts like justice, equality, and liberty.

4. **Assertion (A):** The Indian Constitution promotes secularism.
Reason (R): The state treats all religions equally.

5.**Assertion (A):** Right to Equality abolishes untouchability.
Reason (R): Discrimination on the basis of caste is prohibited in India.

prepare a project file according to CBSE guidelines on any one of the following topics (as per your roll no.)

1.Making of the constitution. (Roll no. 1-6)

2. Elections and representation in India. (Roll no.7-12)

3. Working of Indian judiciary system. (Roll no. 13-18)

4. Rights and duties of citizens (Roll no. 19-24)

5. Federalism in the Indian constitution. (Roll no. 25-30)

6. Growth of local government in India. (Roll no. 31-36)

7. The working of executive and legislature. (37-40)

Instructions for project work

1. It should be a handwritten project on A4 size sheet.

2. it should be well researched and pictorial

3. The project must have table of content

4. The project must have include relevant information, fact and figures

5. It should cover following parameters.

(cover page, school name page, topic name page, index, acknowledgement, certificate, objective, introduction, headings, sub-headings, conclusion, bibliography, remarks)

History

project file topics

1.Ancient history in depth: Mesopotamia (Roll no 1-10)

2.Roman empire: History and contribution (Roll no11-20)

3.Piecing together the past of Genghis khan (Roll no 21-30)

4.Different school of thoughts-Realism, Humanism and Romanticism (Roll no 30 and above)

project file format and instructions

Page-1

- Name
- Class
- Roll Number (to be added later)
- Teacher's Name

Page-2

- School Name

Page-3

- Index Page

Page-4: Certificate Page

Format:

This is to certify that _____ of Class XII ___ has successfully completed the History Project titled "_____" under the guidance of _____ during the academic session _____.

Teacher's Signature

External Examiner Signature

Page-5: Acknowledgement

- Write acknowledgement for teacher, school and parents.

Page-6: Introduction

- Meaning/background of topic

Why topic is important
Brief overview

Page-7: Objective

• Write objectives related to the topic.

Page-8 onwards: Main Content

- Contains at least 30 pages
- Add Maps
- Add Pictures
- Add Charts
- Conclusion
- Summarize the project and learning outcomes.

Bibliography

- NCERT History Book
- Reference Books
- Teacher's Notes
- Educational Websites
- Teacher's Remark Page
- Leave one page for teacher remarks and signatures.

Important Presentation Tips

- Use black/blue pen only for writing.
- Keep margins on both sides.
- Use coloured sketch pens only for headings.
- Paste relevant pictures neatly.
- Maintain clean handwriting.
- Number all pages properly.
- Make file attractive by using art craft skills.
- Try to decorate all pages.
- Decorate front of file by using picture related to topic or quotes.

History- Worksheet

Chapter - 1 : Writing and City Life

Section A - MCQs

Q.1 Which civilization is associated with the earliest cities?

a) Egyptian Civilization b) Mesopotamian Civilization

c) Chinese Civilization d) Greek Civilization

Q.2 Mesopotamia means:

a) Land between two mountains b) Land between two rivers

c) Land of deserts d) Land near sea

Q.3 Which two rivers surrounded Mesopotamia?

a) Nile and Amazon b) Euphrates and Tigris

c) Indus and Ganga d) Hwang Ho and Yangtze

Q.4 The first known language of Mesopotamia was:

a) Sanskrit b) Sumerian

c) Latin d) Greek

Q.5 Which script was used in Mesopotamia?

a) Hieroglyphics b) Brahmi

c) Cuneiform d) Kharosthi

Q.6 Ur was famous for:

a) Iron industry b) Trade and temples

c) Cotton cultivation d) Ship building

Q.7 Ziggurats were:

a) Palaces b) Temples

c) Markets d) Schools

Q.8 Who was Gilgamesh?

a) Priest b) Merchant

c) King of Uruk d) Farmer

Q.9 The Mesopotamian society was divided into:

a) Two classes b) Three classes

c) Four classes d) Five classes

Q.10 The invention of writing helped in:

a) Agriculture only b) Keeping records

c) Hunting d) Warfare only

Q.11 Which metal was not available in Mesopotamia?

a) Copper b) Tin

c) Silver d) Gold

Q.12 The main occupation of Mesopotamians was:

a) Fishing b) Agriculture

c) Hunting d) Mining

Q.13 Which city was associated with Goddess Inanna?

a) Ur b) Uruk

c) Babylon d) Kish

Q.14 Hammurabi was famous for:

a) Building pyramids b) Law code

c) Discovering iron d) Naval trade

Q.15 The Great Bath belonged to:

a) Mesopotamia b) Egypt

c) Harappan Civilization d) China

Very Short Answer Questions

Q.1 What is Mesopotamia?

Q.2 Name the two rivers of Mesopotamia.

Q.3 What is cuneiform script?

Q.4 What were ziggurats?

Q.5 Who was Hammurabi?

Q.6 Name one important city of Mesopotamia.

Q.7 What was the main occupation of people in Mesopotamia?

Q.8 What is the Epic of Gilgamesh?

Q.9 Why was writing important in Mesopotamia?

Q.10 What were the main trade items of Mesopotamia?

Chapter - 2 : An Empire Across Three Continents

Section A - MCQs

Q.1 Which empire spread across Europe, Asia and Africa?

a) Mauryan Empire b) Roman Empire

c) Gupta Empire d) Ottoman Empire

Q.2 Rome was situated on the banks of river:

a) Nile b) Tiber

c) Indus d) Euphrates

Q.3 Which sea was central to the Roman Empire?

a) Arabian Sea b) Mediterranean Sea

c) Black Sea d) Caspian Sea

Q.4 Augustus was:

a) Greek ruler b) Roman Emperor

c) Egyptian ruler d) Persian king

Q.5 The Roman Empire was divided into:

a) Two parts b) Three parts

c) Four parts d) Five parts

Q.6 The language of the western Roman Empire was:

a) Sanskrit b) Latin

c) Arabic d) Persian

Q.7 Which religion spread rapidly in the Roman Empire?

a) Buddhism b) Jainism

c) Christianity d) Hinduism

Q.8 Constantine was important because:

a) He ended trade b) He accepted Christianity

c) He built pyramids d) He invaded India

Q.9 Roman economy depended mainly on:

a) Agriculture b) Fishing

c) Hunting d) Nomadic life

Q.10 Colosseum was:

a) Temple b) Amphitheatre

c) Palace d) Port

Q.11 Roman society included:

a) Senators b) Slaves

c) Plebeians d) All of these

Q.12 Silk route connected Rome with:

a) India and China b) Japan only

c) Egypt only d) Africa only

Q.13 The eastern Roman Empire was known as:

a) Byzantine Empire b) Ottoman Empire

c) Gupta Empire d) Persian Empire

Q.14 The decline of Roman Empire began in:

a) 1st century CE b) 3rd century CE

c) 8th century CE d) 10th century CE

Q.15 Roman roads were important for:

a) Religious ceremonies b) Trade and administration

c) Hunting d) Farming only

Very Short Answer Questions

Q.1 Name the river on which Rome was situated.

Q.2 Who was Augustus?

Q.3 What was the Colosseum?

Q.4 Name the sea connected with Roman trade.

Q.5 Which religion became popular in the Roman Empire?

Q.6 What was the Silk Route?

Q.7 Name the two parts of the Roman Empire.

Q.8 What was the main language of the western Roman Empire?

Q.9 Who was Constantine?

Q.10 Mention one reason for the decline of the Roman Empire.

Geography

1. Create a comprehensive project on biodiversity and conservation that includes an introduction to biodiversity, its levels, importance, loss, and conservation efforts. Additionally, include one case study of a successful biodiversity conservation project from around the world. Also Prepare a presentation summarizing your findings and highlighting the key points."

[For students whose name starts with **A** through **I**]

OR

Create a comprehensive project on natural hazards and disasters that includes an introduction to disasters, their classification, causes, impacts, and mitigation strategies. Additionally, include one case study of a significant natural disaster from around the world. Prepare a presentation summarizing your findings and highlighting the key points."

[For students whose name starts with **J** through **Z**]

1. Download the **BhooKamp app** or follow **National Centre for Siesmology** on **X** and write details of 10 earthquakes with magnitude higher than 4 occurring in the month of **June** in the following format: -

    a. Magnitude:
    b. Location
    c. Date
    d. Time
    e. Depth

    For eg: - Magnitude : 4.2
    Location : Nepal
    Date: 20/5/25
    Time: 15:05 IST
    Depth: 10 km

2. Label and locate major lithospheric plates and minor lithospheric plates on World Map and paste in your notebook.
3. Label and locate major seas, Continents and Oceans on World Map and paste in your notebook.
4. Complete notebook. (notes, cover, maps, index, hhw)

Economics

1. **Project work**

Instructions

Page Distribution Example

Cover Page Include:

- Project Title
- Student Name
- Class & Section
- Roll Number
- School Name
- Subject: Economics
- Session/Year
- + Certificate + Acknowledgement 3 page
- Index- 1 page
- Introduction- 2 to 3 pages
- Main Content- 14 to 16 pages
- Survey & Questionnaire- 4 pages
- Data Analysis- 4 to 5 Page
- Conclusion- 2 pages
- Bibliography- 1page
- Total- 35 pages

Decoration & Presentation Tips

- Use colored headings,
- Add charts and pictures,
- Maintain neat handwriting,
- Highlight important points*
- Use file cover or spiral binding*
- Use colourful pens and cutting sheets to enhance your work.

2. Certificate

A short certificate signed by:

- Subject Teacher
- Principal

3. Acknowledgement

Write thanks to:*

- Teacher

- Parents
- School

(1 page)

Topics

- Roll 1 to 8 (**Demand Analysis)**
- Roll 9 to 16 (**Supply Analysis)**
- Roll 17 to 24 (**Use of Statistics in Daily Life, collection of data)**
- Roll 25 to 32 (**Graphical Representation of Data)**
- Roll 33 to 40 (**Central Tendency Mean)**
- Roll 41 to above (**Central Tendency Median And Mode)**

2.Make a Power point presentation on the topic of

" ***Effect on Production possibility curve (PPC) due to various government policies"***

5 to 6 pages, with diagrammatic presentation.

*Including example.

3 Read chapter 3,4 in statistics and prepare notes in fair copy.

4 Make a poster /chart on topic of economics

- Consumer equilibrium
- Producers equilibrium
- Collection of data
- presentation of data
- Cost
- Supply
- Demand
- Mean median and mode
- Perfect competition market

Poster/chart should be colorful and attractive *marks will be given for each entities.*

Accountancy

Worksheet-1

Q.1 Amount invested in the business by the owner is known as _____(1)

Q.2 The branch of accounting which is concerned with GST and Income tax is known as----------(1)

Q.3 Book Keeping starts where accounting ends. State true or False. (1)

Q.4. Cost Accounting is a branch of Accounting. State true or False. (1)

Q.5. The excess of expenses of a period over its related revenues is termed as:(a) Profit (b) Loss (c) Gain (d) Expenses (1)

Q.6 Current assets do not include:(a) Motor car (b) Inventory (c) Bills Receivable (d) Debtors (1)

Q.7 Rent is to be paid Rs 6,000 recorded as Outstanding Rent due to _____ concept. (1)

Q.8 Aman and Raman are creating 5% provision for doubtful debts keeping in mind_____ principle of accounting. (1)

Q.9 Due to consistency Concept, accounting practices once selected and adopted, should be applied year after year. (True or False) (1)

Q.10 Under Dual Aspect, every transaction has 2 aspects one Debit and another Credit. (True or False). (1)

Q.11 The accounting data does not reflect the True and fair view of the firm as the heterogeneous value of together is the limitation of the concept of :a) Money Measurement b) cost c) Accounting period d) Matching (1)

Q.12 The value of a building that has been purchased by the firm for 3 crores, keeps on changing with its market value violates the principle of a) Historical cost b) Matching c) Money Measurement d) Materiality (1)

Q.13 Explain the objectives of Accounting. (4)

Q.14 Explain the following:

(i) Capital receipts (ii) Expense (iii) Deferred revenue expenditure (iv) Fictitious asset (4)

Worksheet- 2

Q.1 Branch of commerce which keeps a record of monetary transactions in a set of books is called -- (1)

Q.2 The excess of revenue over expenses of an accounting year is known as --------. (1)

Q.3 Accounting involves only the recording of Business Transactions. (True or False) (1)

Q.4 Assets which can be converted into cash within a year is known as Fixed Assets. (True or False) (1)

Q.5 Those assets which have physical existence and can be seen and touched are: (1)

(a) Current assets (b) Tangible assets

(c) Intangible assets (d) None of these

Q.6 The goods available with the business for sale on a particular date is known as: (1)

(a) Stock (b) Creditors

(c) Debtors (d) None of these

Q.7 Karan started business with cash of Rs 3,50,000 which is borrowed from Dev. On one hand he has an asset of Rs 3,50,000 (cash) while on other hand, he has a liability towards Dev. Thus we can say accounting is done by _____ entry system. (1)

Q.8 Devdhar keeps record of his assets according to market value, probably he does not know about _____ concept. (1)

Q.9 ICAI stands for Institute of Company Accounts. (True or False) (1)

Q.10 Accounting Standards signifies Uniformity, Transparency and Consistency in Accounting. (True or False) (1)

Q.11 According to Dual Aspect State the accounts that affects when the goods are sold to Mr. Mohan.

a) Cash A/c and Stock A/c b) Debtors A/c and Cash A/c

c) Stock and Debtors d) Creditors and Stock (1)

Q.12 Determine if the following are assets, liabilities, revenue or expense: (4)

(a) bank overdraft (b) Mohan (proprietor)

(c) Purchases (d) carriage outward

(e) interest received (f) sales

Q.13 Explain Accounting as an Information System. (5)

Worksheet- 3

Q.1 Fixed assets are also known as ----------. (1)

Q.2 Main function of accounting is to maintain complete and systematic record of ----------transactions (1)

Q.3 Those debts that are payable after a period of one year is known as Current Liabilities. (True or False) (1)

Q.4 Costs incurred by a business for earning revenue are known as Expenses. (True or False) (1)

Q.5 Which one an example of current liabilities: (1)

(a) Bills Receivable (b) Debtors

(c) Creditors (d) None of these

Q.6 Goodwill is the assets:(a) Intangible assets (b) Tangible assets (c) Current assets (d) All of these (1)

Q.7 Ghanshyam and co. purchased machinery worth Rs 12,00,000. It further incurred transportation cost of Rs 2,00,000 and installation cost of Rs 5,00,000. The market price of the machinery at the end of the accounting year was Rs 25,00,000. Ghanshyam and co. should record the machinery price as Rs _____ in the books. (1)

Q.8 Rajawat Furnishing House purchased 10 tables @ Rs 2,000, 20 chairs @Rs 800 and 2Sofa Set. He was not able to record the transaction of Sofa Set as it does not fulfil the condition of ____ concept. (1)

Q.9 Accounting Principles, concepts and conventions commonly known as GAAPs. (True or False) (1)

Q.10 Under Accrual Basis of Accounting, only cash transactions are recorded. (True or False) (1)

Q.11 Explain the branches of Accounting. (3)

Q12 Write any three differences between Cash Basis Accounting and Accrual Basic accounting (3).

Qus13 What are the Advantages and Disadvantages of cash Basis of Accounting (4)

Worksheet- 4

Q.1 Word used for not showing the actual position in the financial statement is --------(1)

Q.2 Branch of accounting used to calculate cost of product is ----------. (1)

Q.3 Assets accounts normally have a credit balance. (True or False) (1)

Q.4 Plant & Machinery is a type of Fixed Assets (True or False) (1)

Q.5 Qualitative characteristics of accounting information are: (1)

(a) Reliability (b) Relevance

(c) Understandable (d) All of these

Q.6 A summarized record of relevant transactions of particulars head at one place are: (1)

(a) Ledger (b) Journal

(c) Account (d) Purchases book (1)

Q.7 Ajit is running a small shop and keeping record of cash inflow and outflow only. He is maintaining his books on _____ basis of accounting. (1)

Q.8 Somya and Komal are manager in a company. Somya is more organised and systematic, but employer cannot record her Quality of work as her efficiency cannot be measured in terms of_____.(1)

Q.9 As per Income Tax Act, Accounting Period is from 1st January to 31st December. (True or False) (1)

Q.10 As per Dual Aspect Capital = Assets + Liabilities. (True or False) (1)

Q.11 According to the Matching concept, a company show all the expenses related to its revenues of a specified period even if: (1)
a) Expenses were not paid in that period
b) Revenues were not paid in that period
c) Fixed assets were not sold in that period
d) Liabilities were not paid in that period.

Q.12 Discuss the limitations of Accounting. (3)

Q.13 Define the following terms: (6)
(a) Deferred Revenue Expenditure (b) Revenue
(c) Fictitious Asset (d) Bill Receivable
(e) Bad debts (f) Gain

Worksheet- 5

Q1. Analyse the following transactions and show their effect on accounting equation.

(a) Started business with cash Rs40,000.

(b) Opened a Bank Account with a deposit of Rs10,000.

(c) Bought goods from Hari for Rs11,000.

(d) Purchased goods for cash Rs10,000.

(e) Sold goods costing Rs1,500 to Ajit for Rs1,800.

(f) Cash withdrawn from bank for office use Rs5,000

(g) Withdrew cash from bank for personal use Rs2,000.

Q2. Analyse the following transactions and show their effect on the accounting equation.

(a) Commenced business with cash Rs10,000.

(b) Purchased machinery for Rs1,000.

(c) Paid rent of Rs500.

(d) Purchased goods on credit Rs2,000.

(e) Sold goods (cost price Rs2,000) for Rs1,500 on cash.

(f) Paid insurance in advance Rs1,500.

(g) Purchased goods for cash Rs3,000 and credit Rs2,000.

(h) Sold goods for cash Rs2,000 costing Rs2,500.

(i) Paid salary Rs2,500 and salary outstanding being Rs500.

(j) Goods withdrawn for personal use Rs2000.

Q3 Prepare accounting equation from the following:

(i) Started a business with cash Rs2,00,000 and goods worth Rs40,000.

(ii) Sold half of the goods to Manohar at a 20% profit on cost.

(iii) Rent paid Rs10,000.

(iv) Manohar paid Rs23,500 in full settlement.

Q4 Show the accounting equation on the basis of the following transactions and prepare Balance Sheet for the final equation:

(i) Started business with cash Rs60,000, Machinery Rs30,000 and Goods Rs10,000.

(ii) Purchased building for cash Rs50,000.

(iii) Purchased goods on credit Rs5,000 and on cash Rs2,000.

(iv) Insurance Premium Paid in Advance Rs1,000.

(v) Depreciation on building Rs800 and on machinery Rs3,000.

(vi) Cash withdrawn for personal use Rs2,000.

(vii) Rent received in advance Rs5,000.

(viii) Sold goods costing Rs14,000 for Rs15,500.

(ix) Interest on capital Rs1,200

Q5.Prepare Accounting Equation from the following transactions and also the Balance Sheet:

(i) Manu started business with cash Rs 1,00,000. Opened a Bank Account and transferred Rs4,00,000 from his Savings Account.

(ii) Purchased a building from Sohan for Rs12,00,000 paid by taking a loan from SBI Rs 1,0,00,000

(iii) Paid interest on loan Rs20,000 and instalment of ₹ 1,00,000.

(iv) Purchased goods from Rohan on credit Rs1.00,000

(v) Goods returned to Rohan costing Rs20,000.

(vi) Sold goods costing Rs40,000 for Rs 50.000 on credit to Ram

(vii) Took goods from business for personal use Rs10,000

(viii) Accrued interest Rs5,000

(ix) Commission received in advance Rs20,000

(x) Cash received from RamRs10,000

Q6 Prem Chand started a business on 1st April, 2015 with a capital of Rs2,00,000. On 31st March, 2016 his assets were worth Rs4,80,000 and liabilities Rs1,20,000. Find out his closing capital and profit earned during the year.

Q7 On 31st March 2020, the total assets and outside liabilities were Rs6,00,000 and Rs2,40,000 respectively. During the year, the owner had introduced additional capital of Rs50,000 and withdrawn Rs30,000 for personal use. He made a profit of Rs1,00,000 during the year. Find out his opening capital.

Q8 On 1st April, 2021, R started business with a capital of Rs2,00,000 and a loan of Rs1,00,000 borrowed from a friend. During the year, he earned a profit of Rs50,000, introduced an additional capital of Rs80,000 and had withdrawn Rs9,000 for his personal use. Find his closing capital.

Q9 Ajay started business on 1st April, 2021 with capital of Rs2,50,000. On 31st March, 2022

his total assets were Rs10,50,000 and liabilities were Rs5,50,000. Calculate the amount of profit earned by the business during the year.

Q10. Solve the following:

If total assets of the business are Rs2,50,000 and outside liabilities are Rs85,000. Calculate

owner's equity.

(a) If the capital of the business is Rs1,00,000 and outside liabilities are Rs50,000. Calculate total equity of the business.

(b) If total assets of the business are Rs1,50,000 and Capital is Rs1,05,000. Calculate liabilities.

Subject- Business Studies

PART A – WORKSHEET

Answer the following questions in about 3 marks each.

CHAPTER 1 – EVOLUTION AND FOUNDATION OF BUSINESS

Q1. Explain the meaning of business and state any two characteristics of business activities.

Q2. Differentiate between economic and non-economic activities with suitable examples.

Q3. What is meant by industry? Explain its types briefly.

Q4. Explain any three auxiliaries to trade.

Q5. Why is profit considered essential for business? Give any three reasons.

CHAPTER 2 – FORMS OF BUSINESS ORGANISATION

Q6.State any three features of a sole proprietorship form of business.

Q7.Explain the meaning of partnership and mention any two merits of partnership firm.

Q8.Differentiate between Joint Hindu Family Business and Partnership on any three bases.

Q9.What are cooperative societies? State any two advantages of cooperative societies.

Q10.Explain any three features of a company form of organization.

DO THESE WORKSHEETS IN FAIR NOTEBOOK

PART B – PROJECT WORK

PROJECT TOPIC:

“Study of a Reputed Company”

📝 **PROJECT ASSIGNMENT AS PER ROLL NUMBER**

Roll Numbers

Company Assigned

- 1 – 10. Tata Group
- 11– 20. Reliance Industries
- 21– 30. Infosys
- 31 – 40. Wipro
- 41 onwards Amul

PROJECT SHOULD INCLUDE:

***Cover page**

- Index
- Introduction of the Company
- Founder and Year of Establishment
- Nature of Business
- Products/Services Offered
- Organizational Structure
- Achievements and Success Story
- Social Responsibility Activities (CSR)
- Conclusion
- Bibliography

PROJECT GUIDELINES

- Use A4 size ruled/plain sheets.
- Handwritten work is compulsory.
- Decorate the file neatly with charts/pictures.
- Minimum 20–25pages.
- Use proper headings and subheadings.
- Maintain cleanliness and creativity.

QUOTE

“Success in business requires training, discipline and hard work.”

BEST OF LUCK

Mathematics

Ch.1 - Sets

WORKSHEET-I

1. Describe each of the following sets in Roster from

(i) $\{x : x$ is a positive integer and a divisor of $9\}$ [{1, 3, 9}]

(ii) $\{x : x \in Z \text{ and } |x| \leq 2\}$ [$x = 0, \pm 1, \pm 2$]

(iii) $\{x: x$ is a letter of the word 'PROPORTION'$\}$ [{P, R, O, T, I, N}]

(iv) $\left\{x : x = \frac{n}{n^2+1} \text{ and } 1 \leq n \leq 3, \text{ where } n \in N\right\}$ $\left[\left\{\frac{1}{2}, \frac{2}{5}, \frac{3}{10}\right\}\right]$

2. Write the set $\left\{\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \frac{5}{6}, \frac{7}{8}, \frac{8}{9}, \frac{9}{10}\right\}$ in the set-builder from.

$\left[X = \left\{1, \frac{1}{4}, \frac{1}{9}, \frac{1}{16}, \frac{1}{25}, ...\right\}\right.$ in the set builder from.]

3. Describe the following sets in Roster form:

(i) $\{x : x$ is a letter before e in the English alphabet$\}$. $[\{a, b, c, d\}]$

(ii) $\{x \in N : x^2 < 25\}$ [{1, 2, 3, 4}]

(iii) $\{ x \in N : x$ is a prime number, $10 < x < 20 \}$ [{11, 13, 17, 19},]

(iv) $\{x \in N : x = 2n, n \in N\}$ [{2, 4, 6, 8, ...}]

(v) $\{x \in N : x > x\}$ $[\phi]$

(vi) $\{x : x$ is a prime number which is a divisor of 60$\}$. [{2, 3, 5}]

(vii) $\{x : x$ is a two digit number such that the sum of its digits is 8$\}$

[{17, 26, 35, 44, 53, 62, 71, 80}]

(viii) The set of all letters in the word 'Trigonometry'. [{17, 26, 35, 44, 53, 62, 71, 80}]

(ix) The set of all letters in the word 'Better'.

[{T, R, I, G, O, N, M, E, Y}(ix){B, E, T, R}]

4. Describe the following sets in set-builder form:

(i) a = { 1, 2, 3, 4, 5, 6} $[\{x; x \in N, x < 7\}]$

(ii) B = {1, 1/2, 1/3, 1/4, 1/4,.....} $[[x : x = 1/n, x \in n]]$

(iii) C = {0, 3, 6, 9, 12,.....} $[[x : x = 3n, n \in Z^+]]$

(iv) D = {10, 11, 12, 13, 14, 15} $[\{x : x \in N, 9 < x < 16\}]$

(v) E = {0} $[\{x : x = 0\}]$

(vi) {1, 4, 9, 16,....., 100} $[\{x^2 : x \in N, 1 \leq x \leq 10\}]$

(viii) $\{2, 4, 6, 8, \ldots\ldots\}$ $[\{x : x = 2n, n \in N\}]$

(viii) $\{5, 25, 125, 625\}$ $[\{5^n : n \in N, 1 \le N \le 4\}]$

5. List all the elements of the following sets:

(i) $A = \{x : x^2 \le 10, x \in Z\}$ $[A = \{0, \pm 1, \pm 2, \pm 3\}]$

(ii) $B = \left\{x : x = \frac{1}{2n-1}, 1 \le n \le 5\right\}$ $\left[B = \left\{1, \frac{1}{3}, \frac{1}{5}, \frac{1}{7}, \frac{1}{9}\right\}\right]$

(iii) $\left\{C = x : x \text{ is an integer}, \frac{1}{2} < x < \frac{9}{2}\right\}$ [C = {0, 1, 2, 3, 4}]

(iv) D = {x : x is a vowel in the word "EQUATION"} [X = { A, E, I, O , U}]

(v) E = {x : x is a month of a year not having 31 days}

[E = { Feb., April, June, Sept., November}]

(vi) F { x : x is a letter of the word "MISSISSIPPI"} [F = {M, I, S, P}]

6. Write the set $\left\{\frac{1}{2}, \frac{2}{5}, \frac{3}{10}, \frac{4}{17}, \frac{5}{26}, \frac{6}{37}, \frac{7}{50}\right\}$ in the set-builder form. $\left[\left\{\frac{n}{n^2+1} : n \in N, n \le 7\right\}\right]$

7. Which of the following sets are finite and which are infinite?

(i) Set of concentric circles in a plane. [Infinite]

(ii) Set of letters of the English Alphabets [Finite]

(iii) $\{x \in N : x > 5\}$ [Infinite]

(iv) $\{x \in N : x < 200\}$ [Finite]

(v) $\{x \in Z : x < 5\}$ [Infinite]

(vi) $\{x \in R : 0 < x < 1\}$ [Infinite]

8. Which of the following sets are equal?

(i) A = {1, 2, 3}

(ii) $B = \{x \in R : x^2 - 2x + 1 = 0\}$

(iii) C = {1, 2, 2, 3}

(iv) $D = \{x \in R : x^3 - 6x^2 + 11x - 6 = 0\}$ [A = C = D]

9. Two finite sets have m and n elements. The total number of subsets of the first set is 56 more than the total number of subsets of the second set. Find the values of m and n. $[X \subset Y]$

10. Write the following subsets of R as intervals:

(i) $\{x : x \in R, -4 < x \le 6\}$ $[\{x : x \in R, -4 < x \le 6\} = (-4, 6]$ Length = 6 –(–4) = 10]

(ii) $\{x : x \in R, -12 < x < -10\}$

(iii) $\{1\} \in A$ [F]

(iv) $\{2, \phi\} \subset A$ [T]

(v) $2 \subset A$ [F]

(vi) $\{2, \{1\}\} \not\subset A$ [T]

(vii) $\{\{2\}, \{1\}\} \not\subset A$ [T]

(viii) $\{\phi, \{\phi\}, \{1, \phi\}\} \subset A$ [T]

(ix) $\{\{\phi\}\} \subset A$ [T]

15. Write down all possible subsets of each of the following sets:

(i) {a} $[\phi, \{a\}]$

(ii) {0, 1} $[\phi, \{0\}, \{1\}, \{0,1\}]$

(iii) {a, b, c} $[\phi, \{a\}, \{b\}, \{c\}, \{a,b\}, \{a,c\}, \{a,b,c\}]$

(iv) {1, {1}} $[\phi, \{1\}, \{\{1\}\}, \{1, \{1\}\}]$

16. If A and B are two sets such that $A \subset B$, then find:

(i) $A \cap B$ (ii) $A \cup B$ [(i)A (ii)B]

17. Let $A = \{x : x \in N\}, B\{x : x = 2n, n \in N\}, C = \{x : x = 2n-1, n \in N\}$

and, $D = \{x : x \text{ is a prime natural number}\}$. Find

(i) $A \cap B$ (ii) $A \cap C$

(iii) $A \cap D$ (iv) $B \cap C$

(v) $B \cap D$ (vi) $C \cap D$

[(i)B (ii)C (iii)D (iv)ϕ (v)$(A')'$ (vi)$(B-C)'$]

18. Let U = $\{1,2,3,4,56,7,8,9\}$, $A = \{1,2,3,4\}$, $B = \{2,4,8\}$ and $C = \{3,4,5,6\}$

(i) A' [{5, 6, 7, 8, 9}]

(ii) B' [{1, 3, 5, 7, 9}]

(iii) $(A \cap C)'$ [{1, 2, 5, 6, 7, 8, 9}]

(iv) $(A \cap B)'$ [{5, 7, 9}]

(v) $(A')'$ [A]

(vi) $(B-C)'$ [{1, 3, 4, 5, 6, 7, 9}]

19. Let A, B and C be the sets such that $A \cup B = A \cup C$ and $A \cap B = A \cap C$. Show that B = C.

20. Using properties of sets, show that for any tow sets A and B, $(A \cup B) \cap (A \cup B') = A$.

$[(A \cup B) \cap (A \cup B') = ((A \cup B) \cap A) \cup ((A \cup B) \cup B')$

$= (A \cup ((A \cup B) \cap B') = A \cup (A \cap B') \cup (B \cap B')\ A \cup (A \cap B') = A]$

Ch.2 - Relations and Functions

WORKSHEET-I

1. Find x and y, if (x + 3, 5) = (6, 2x + y) [–1]

2. Let A = {1, 2, 3} and $B=\{x: x \in N, x \text{ is prime less than } 5\}$. Find A ×B and B × A.

   [A × B = {1, 2, 3} × {2, 3} = {(1, 2), (1, 3) , (2, 2) (2, 3), (3, 2), (3, 3)}

   B × A = { 2, 3} × { 1, 2, 3} = {(2, 1), (2, 2) (2, 3), (3, 1), (3, 2), (3, 3)}]

3. If $A \times B=\{(a,1),(b,3),(a,3)(b,1),(a,2),(b,2)\}$, find A and B.

   [A = {a, b} and B = {1, 2, 3}]

4. Let A and B be two sets such that A × B consist of 6 elements. If three elements of A × B are : (1, 4), (2, 6), (3, 6). Find A × B and B × A.

   [A × B = {1, 2, 3} × {4, 6} = {(1, 4), (1, 6), (2, 4), (2, 6), (3, 4), (3, 6)}

   B × A = {4, 6} × {1, 2, 3} = {(4, 1), (4, 2), (4, 3), (6, 1), (6, 2), (6, 3)}]

5. The Cartesian produce A × A has 9 elements among which are found (–1, 0) and (0, 1). Find the set A and the remaining elements of A × A. $[A=\{-1,0,1\}]$

6. Let A and B be two sets such that n (A) = 5 and n (B) = 2. If a, b, c, d, e are distinct and (a, 2), (b, 3) , (c, 2), (d, 3), (e, 2) are in A × B, find A and B. [A = {a, b, c, d, e}, B = {2, 3}]

7. Let $A=\{-1,3,4\}$ and $B=\{2,3\}$. Represent the following products graphically i.e. by lattices:

   (i) A × B (ii) B × A (iii) A × A

8. If the ordered pairs (x, –1) and (5, y) belong to the set {(a, b): b = 2a –3}, find the values of x and y.

   [X = 1, y = 7]

9. If $a \in \{-1,2,3,4,5\}$ and $b \in \{0,3,6\}$, write the set of all ordered pairs (a, b) such that a + b = 5.

   [{(–1, 6), (2, 3), (5, 0)}]

10. If $a \in \{2,4,6,9\}$ and $b \in \{4,6,18,27\}$, then form the set of all ordered pairs (a, b) such that a divides b and a < b. [{(2, 4), (2, 6), (2, 18), (6, 18), (9, 18), (9, 27)}]

11. If $A=\{1,2,3\}$ and $B=\{2,4\}$, what are A × B, B × A, A × A, B × B, and $(A \times B) \cap (B \times A)$?

    [{(2, 2)}]

12. If A and B are two sets having 3 elements in common. If $n(A)=5$, $n(B)=4$, find $n(A \times B)$ and $n[(A \times B) \cap (B \times A)]$ $[n(A \times B)=20, n[(A \times B) \cap (B \times A)]=9]$

13. If $A=\{-1,1\}$, find A × A × A.

    $[A \times A \times A=\{(-1,-1,-1,),(-1,-1,1),(-1,1,-1),\ (-1,1,1),(1,-1,-1),(1,-1,1),\ (1,1,-1),(1,1,1)\}]$

14. Let A = {1, 2}, B = {1, 2, 3,4 }, C = {5, 6} and D = {5, 6, 7, 8}. Verify that:

    (i) $A \times C \subset B \times D$

    (ii) $A \times (B \cap C)=(A \times B) \cap (A \times C)$

    $[R=\{(1,1),(1,2),(1,3),(1,4),(2,2)(2,4),(3,3),(4,4)\}]$

15. If $A=\{1,3,5,7\}, B=\{2,4,6,8,10\}$ and let $R=\{(1,8),(3,6),(5,2),(1,4)$ be a relation from A to B. Then,

    Domain (R) = {1, 3, 5} and Range (R) = {8, 6, 2, 4}

WORKSHEET-I

Problems based on angles and their measurements

1. Find the degree measure corresponding to the following radian measures :

   (i) $\left(\frac{9\pi}{5}\right)^c$

   (ii) $(-4)^c$

   (iii) $\left(\frac{7\pi}{6}\right)^c$ [(i) 324° (ii) −229° 5′ 54″ approx. (iii) 210°]

2. Find the radian measure corresponding to the following degree measures

   (i) 300° $\left[\left(\frac{5\pi}{3}\right)^c\right]$

   (ii) 125° 30′ $\left[\left(\frac{251\pi}{360}\right)^c\right]$

   (iii) 7°30′ $\left[\left(\frac{\pi}{24}\right)^c\right]$

3. Express 45° 20′ 10″ in Radian measure [0.79 radian]

4. The angles of triangle are in the ratio 3 : 4 : 5. Find the smallest angle in degrees and greatest angle in radians. $\left[45^\circ, \left(\frac{5\pi}{12}\right)^C\right]$

5. The angles of a triangle are in A.P and the number of grades in the least is to number of radians in the greatest is 40 : π, find the angles in degrees.

6. Find the distance from the eye at which a coin of 2 cm diameter should be held so as to conceal the full moon whose angular diameter is 31′. [20°, 60°, 100°]

7. The perimeter of a certain sector of a circle is equal to the length of the arc of the semicircle having the same radius express the angle of the sector in degrees, minutes and seconds. [2.217 m]

8. The minute hand of the clock is 10 cm long. How far does the tip of the hand move in 20 minutes? [65° 24′ 30.4″]

9. A wire 121 cm long is bent so as to lie along the arc of a circle of radius 180 cm. Find in degrees the angle subtended at the centre by the arc. $\left[\frac{20\pi}{3}\text{ cm}\right]$

6. 10.A man running along a circular track at the rate of 10 miles per hour traverses in 36 seconds, an arc which subtends an angle 56° at the centre, find the diameter of the circle. [38° 30′]

11. Find the angle between the hour hand and the minute hand in circular measure at half past 4. [0.204 miles]

12. The number of sides of two regular polygons are in the ratio 5 : 4 and the difference between their each interior angle is 9°, find the number of sides of the two polygons. [45°]

13. The angle in one regular polygon is to that in another as 3 : 2 and the number of sides in the first is twice that in the second. Determine the number of sides of the two polygons.

$(1 + \tan\alpha \tan\beta)^2 + (\tan\alpha - \tan\beta)^2 = \sec^2\alpha \ \sec^2\beta$. [10 and 8]

14. $\dfrac{\tan A}{1-\cot A} + \dfrac{\cot A}{1-\tan A} = \sec A \operatorname{cosec} A + 1$. [4 and 8]

Prove the following identities (15 to 23)

15. $2\sec^2\theta - \sec^4\theta - 2\operatorname{cosec}^2\theta + \operatorname{cosec}^4\theta = \cot^4\theta - \tan^4\theta$.

16. $\sin^2 A \cos^2 B - \cos^2 A \sin^2 B = \sin^2 A - \sin^2 B$.

17. $\dfrac{\cos ec\theta}{\cos ec\theta - 1} + \dfrac{\cos ec\theta}{\cos ec\theta + 1} = 2\sec^2\theta$.

18. $(\sec A - \operatorname{cosec} A)\ (1 + \tan A + \cot A) = \tan A \sec A - \cot A \operatorname{cosec} A$.

19. $(\tan A + \operatorname{cosec} B)^2 - (\cot B - \sec A)^2 = 2 \tan A \ \cot B\ (\operatorname{cosec} A + \sec B)$.

20. $\dfrac{2\sin\theta\tan\theta(1-\tan\theta) + 2\sin\theta\sec^2\theta}{(1+\tan\theta)^2} = \dfrac{2\sin\theta}{1+\tan\theta}$.

21. $\dfrac{\cot^2\theta(\sec\theta - 1)}{1+\sin\theta} = \sec^2\theta . \dfrac{1-\sin\theta}{1+\sec\theta}$

22. $(\operatorname{cosec}\theta - \sec\theta)(\cot\theta - \tan\theta) = (\operatorname{cosec}\theta + \sec\theta)(\sec\theta \operatorname{cosec}\theta - 2)$

23. $(\tan\theta + \operatorname{cosec}\phi)^2 - (\cot\phi - \sec\theta)^2 = 2 \tan\theta \cot\phi\ (\operatorname{cosec}\theta + \sec\phi)$

Problems based on elimination of θ (24 to 33)

24. If $\operatorname{cosec}\theta - \sin\theta = a^3$, $\sec\theta - \cos\theta = b^3$, then prove that $a^2b^2(a^2 + b^2) = 1$

25. If $\cot\theta(1 + \sin\theta) = 4m$ and $\cot\theta(1 - \sin\theta) = 4n$, then prove that $(m^2 - n^2)^2 = mn$

28. if $\sin\theta$ and $\cos\theta$ are the roots of $ax^2 - bx + c = 0$ show that $a^2 - b^2 + 2ac = 0$

29. if $\cos x + \sin x = \sqrt{2}\cos x$, prove that $\cos x - \sin x = \pm\sqrt{2}\sin x$

30. If $\dfrac{\cos\alpha}{\cos\beta} = a, \dfrac{\sin\alpha}{\sin\beta} = b$, then prove that $(a^2 - b^2)\sin^2\beta = a^2 - 1$

31. If $\dfrac{ax}{\cos\theta} + \dfrac{by}{\sin\theta} = (a^2 - b^2)$ *and* $\dfrac{ax\sin\theta}{\cos^2\theta} - \dfrac{by\cos\theta}{\sin^2\theta} = 0$, prove that: $(ax)^{2/3} + (by)^{2/3} = (a^2 - b^2)^{2/3}$

32. If $c\cos^3\theta + 3c\cos\theta\sin^2\theta = m$, $c\sin^3\theta + 3c\cos^2\theta\sin\theta = n$ then prove that $(m + n)^{2/3} + (m - n)^{2/3} = 2c^{2/3}$.

33. Eliminate θ from the relations $a\sec\theta = 1 - b\tan\theta$, $a^2\sec^2\theta = 5 + b^2\tan^2\theta$ $[a^2b^2 + 4a^2 = 9b^2]$

34. If $\sin\alpha + \operatorname{cosec}\alpha = 2$, prove that $\sin^n\alpha + \operatorname{cosec}^n\alpha = 2$

35. If $(1 - \sin A)(1 - \sin B)(1 - \sin C) = (1 + \sin A)(1 + \sin B)(1 + \sin C)$ prove that each side is $\pm\cos A \cos B \cos C$

36. If $\sec\theta + \tan\theta = 4$, find $\sec\theta$ and $\tan\theta$. $[\sec\theta = \dfrac{17}{8}, \tan\theta = \dfrac{15}{8}]$

37. If $\sin\theta + \sin^2\theta = 1$ prove that $\cos^{12}\theta + 3\cos^{10}\theta + 3\cos^8\theta + \cos^6\theta - 1 = 0$.

38. If $\sin\theta + \sin^2\theta + \sin^3\theta = 1$, then prove that $\cos^6\theta - 4\cos^4\theta + 8\cos^2\theta = 4$

PROJECT WORK

Q1. Do one project on the given topic.

a) About 5 Indian mathematicians. (Roll no. 1 to 10)

b) About 5 Foreign mathematicians (Roll no. 11 to 20)

c) Fibonaaci sequence, golden ratio (Roll no. 21 & above)

PHYSICS

1. Complete practical file with all experiments and activities.
2. Complete investigatory project.
3. Do all NCERT and EXAMPLER questions of completed syllabus.
4. Make a chart on any physics topic of syllabus.

CHEMISTRY

1. Complete practical file with all experiments.
2. Complete project file.
3. Do all NCERT and EXAMPLER questions of completed syllabus.
4. Make a chart on any topic of your syllabus.

BIOLOGY

1. Make Herberium file. (collect different types of leaves and flowers. Mention scientific and Hindi names with classification and few details of the plants, You can use scrapbook for this.)

2. Cover your practical file with white sheet and write your details on it. Write 2 experiments as discussed during class, with neat and well labelled diagrams.

3. Revise Ch- 1,2 & 8.

4. Make 3D models in group of 2 , presentable and informative. Options are given for each group as made in class:

Group 1 (Girls): Skeleton System or structure of Nephron

Group 2 (Boys) : Photosynthesis or Parts of flowers.