

KENDRIYA VIDYALAYA NO.2 ONGC JORHAT

SUMMER VACATION HOMEWORK
SESSION - 2026-27

CLASS – 1st

★ Complete VIDHYAPRAVESH booklet upto page number 130.

ENGLISH

1) Write alphabets in capital letters and in small letters(2-2 times).

हिन्दी

1) हिन्दी वर्णमाला (स्वर - अ से अः और व्यंजन - क से ज्ञ) तक दो बार लिखिए ।

MATHS

1) Write counting from 1 to 50 (2 times)

KENDRIYA VIDYALAYA NO.2 ONGC JORHAT
SUMMER VACATION HOMEWORK
SESSION - 2026-27

CLASS – 2nd

ENGLISH

- 1) Learn lessons My bicycle and Out! Out!
- 2) Write 20 pages of handwriting.
- 3) Do page no. 26,32,45,52,59 in English book

हिन्दी

- 1) नीमा की दादी , घर और माला की चाँदी की पायल याद करें।
- 2) 20 पेज सुलेख लिखिए।
- 3) कोई भी पाँच विलोम शब्दों के फ्लैश कार्ड बनाइए।

MATHS

- 1) Write and learn tables from 2 to 15.
- 2) Revise the chapter A day at the beach and The shapes around us.
- 3) Make the model of Cube, Cuboid , Cylinder, Cone and Sphere.

ASSAMESE

অসমীয়া স্বৰবৰ্ণ কেইটাৰ উচ্চাৰণ অনুসৰি 2টাকৈ শব্দ গঠন কৰা আৰু
প্রত্যেকৰে ছবি অংকন কৰিবা।

(Do it on A4 size paper)

KENDRIYA VIDYALAYA ONGC JORHAT

SESSION: 2026 – 2027

TERM – 1 (MULTIDISCIPLINARY PROJECT)

CLASS – 3

TOPIC – WATER



Guided by :- (Name of subject teachers)

- 1.
- 2.
- 3.
- 4.

Submitted by :-

Name of student :- _____

Class :- _____

Roll No.:- _____

CERTIFICATE

This is to certify that project report entitled
“MULTIDISCIPLINARY PROJECT” by (student name and
class) _____, Roll
No. _____ has successfully submitted the project
under the guidance of all the subject teacher during the
academic year 2025-2026.

Date:- _____

Place:- _____

Class Teacher:- _____

ACKNOWLEDGEMENT

I would like to express my sincere gratitude to the principals and my subject teachers for giving me the opportunities to the work on this topic. It would never have been possible for me to take this project to this level without their relentless support and encouragement .

I am also thankful to you my parents and my friends for their cooperation and encouragement to helping me to complete the project within the particular time line.

Name of student :- _____

Class :- _____

Roll No.:- _____

ENGLISH

1. Read the passage carefully and answer the questions given below –

"Dabbu is a dolphin. She lives in the ocean and she is very smart. Dabbu and her friends love to jump in and out of the water. She likes to click, chirp and whistle when she is happy. Dabbu eats a lot of small fish every day. Water is her home and she cannot live outside of water."

A. Who is Dabbu ?

ANS: _____

B: What does Dabbu likes to eat?

ANS: _____

C: What can Dabbu do? Choose from the box

Fly, jump, click, roar, purr, whistle, crawl, chirp, dive

D: Write True/False –

- i. Dabbu is a river dolphin. ()
- ii. Dabbu often plays with friends. ()
- iii. Dabbu clicks and whistles when she is sad. ()
- iv. Dabbu preys on large fish. ()
- v. Dabbu is a clever fish. ()

Q2: Write any 5 ways how you can save water

HINDI

1. अपने पूर्व अनुभव के आधार पर दिए गए शब्दों से वाक्य बनाइए -

झरना :

पानी :

पर्वत :

बदल :

नदी :

2. निम्नलिखित चित्र से संबंधित शब्दों के जोड़े बनाइए -



दिए गए शब्दों के जोड़े बनाइए-

काले	हवा
ठंडी	फूल
सुंदर	बादल
हरी	घास
पीली	बत्तख
सफेद	सरसों

3. यदि जल नहीं होगा तो हमारा जीवन कैसा होगा अपने शब्दों में लिखिए? (50 शब्दों में उत्तर लिखिए)

Maths :

1. Collect 5 vessels/water containers of different shapes and measure how many glasses of water do they carry? Jot down your observations in the following table -

Serial no.	Vessel/water container	No. of glasses of water
1		
2		
3		
4		
5		

2. Once upon a time, there was a king. He was kind and smart. There were 158 wells in his kingdom but unfortunately, 39 wells were dried due to summer and 27 were poisoned by the enemies. The people of his kingdom can live with the water of 130 wells. So, tell me how many wells are mandatory to be dug?

T.W.A.U.

1. Draw/ paste five natural source and 5 man-made source of water.
2. In this activity, take a few objects from your surroundings and a half-filled bucket of water. Now, check each of these objects whether they float or sink in water. Then, fill in the given observation table by mentioning objects and putting the tick signs –

SERIAL NUMBER	OBJECT	FLOAT	SINK
1	leaf		
2	stone		
3	pencil		
4	bowl		
5	scale		
6	Plastic bottle		
7	spoon		

2. Design a poster on "How to stop water pollution". Draw and colour it beautifully, write quotes, label the ideas.

NOTE:

MDP should be done in A-4 sheet paper only.

After completion compile all subjects in one folder and submit it.

HOLIDAY HOME WORK

COMPUTER

1. With the help of the internet search one picture of each of the following. Take a print out and paste it in your computer notebook. (Per page two picture)

Mouse, keyboard, Monitor, CPU, UPS, Mother board, RAM, ROM, CD, DVD, Hard disk, Pendrive, DOT matrix Printer, laser printer, inkjet printer, Joystick, Plotter, joystick, web cam.

ART

1. Texture Rubbing Art - Rub crayons on paper over coins/leaves.
2. Story Drawing - Draw a small story in 3 boxes.

KHEL YOGA

Make a practical file and Do write any 3 games of unit 1 & 2 in that practical file ...

Use one sided ruled or one sided blank pages for practical file .

ASSAMESE

১/অসমৰ জাতীয় সংগীত টো মুখস্ব কৰি প্ৰতিদিনে অভ্যাস কৰিবা।

২/A4 size পেপাৰ ত অসমীয়া স্বৰবৰ্ণ খনৰ উচ্চাৰণ অনুসৰি ৪টাকৈ শব্দ গঠন কৰি ছবি অংকন কৰিবা

LIBRARAY

Students have to complete the following homework in their library notebook

1. Write a moral story in English.
2. Write an essay on "School Library" in 100 words. in Hindi
3. Write 10 quotes related with library or education in Hindi.

-----X-----X-----X-----X-----X-----X-----



KENDRIYA VIDYALAYA NO.2
ONGC JORHAT



MULTI-DISCIPLINARY PROJECT (MDP)

Theme: TREES OUR BEST FRIENDS

Linked subjects: ENGLISH, HINDI, MATHS, TWAU

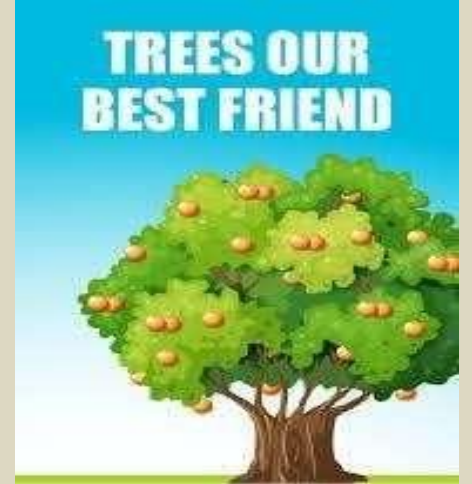
Guide teachers:

ENGLISH :

HINDI :

MATHS :

TWAU :



Name of the student: _____

Class & section: _____ Roll No.: _____

Certificate

This is to certify that _____ student of class &sec _____

has successfully completed her/his project on the **Theme:-Trees Our**

Best friends at **KV NO.2 ONGC JORHAT** for the academic session 2026-

2027.

Class teacher sign:

Evaluation chart

	Subject	Total Marks Obtained	Sign Of Subject Teacher	
	English			
	Hindi			
	Maths			
	TWAU			

Project: - Make a MDP project file on TREES-OUR BEST FRIENDS.

ENGLISH

1. Write sentences on how we harm the trees and draw picture related to it.
2. Write a self-composed poem on trees.

हिंदी

1. पेड़ बचाओ पर 10 नारे लिखिए ।
2. किसी एक पेड़ की विशेषता बताते हुए उसके बारे में 10 वाक्य लिखिए और सम्बंधित पेड़ का सुंदर चित्र बनाकर रंग भरिये ।

MATHS

1. Collect seven to eight leaves of different sizes. Paste them in Ascending order as per their length. Measure and write their length also.
2. Grow a small plant and measure its length at the end of week and record in your file.

T.W.A.U.

1. Draw a tree and paste the things that we get from plants and trees.
2. Observe a big tree in or around your house and write 5 animals and 5 insects found near it.
3. Collect 10 different types of leaves and flower from different trees.
4. Make a poster on save tree.

MAKE SEPARATE NOTE BOOK FOR THE FOLLOWING SUBJECTS

(LIBRARY, KHEL YOGA , ART , DL, MUSIC)

LIBRARY

Students have to complete the following homework in their library notebook

1. Write a moral story in Hindi or English.
2. Write an essay on "School Library" in 200 words.
3. Write 10 quotes related with library or education. in Hindi.

KHEL YOGA

Make a practical file and Do write any 3 games of unit 1 & 2 in that practical file. Use one sided ruled or one sided blank pages for practical file .

ART

Activity 1: Colour Wheel -Make a basic colour wheel.

Activity 2: Festival Card -Design a greeting card.

Activity 3: Object Drawing -Draw and shade a bottle or glass.

DL

Create a "Shortcut Cheat Sheet" in your notebook. Use a bright color for the keys and a different color for the action.

(20 shortcut keys)

MUSIC

Write Kendriya Vidyalaya geet in your music notebook and learn it.



तत् त्वं पूषन् अपावृणु
केन्द्रीय विद्यालय संगठन



MULTI-DISCIPLINARY PROJECT (MDP)

Name of the Student:

Class & Section:

Roll No:

Theme:(Food: Healthy eating habits)

Linked Subjects: (Hindi, English, Maths and
TWAU)

CERTIFICATE

This is to certify that _____ student of
class & sec _____ has successfully completed
her/his project on the

Theme:-Food (Healthy eating habits) at KV NO.2 ONGC

JORHAT for the academic session 2026-27.

Teacher sign:

Date of submission : _____

T.W.A.U.

- 1) Why do we need Balanced diet in our life?
- 2) Write about different sources of food and paste pictures also.
- 3) Locate in a Map any 10 popular food of different state.
- 4) Write 5 ways to avoid wastage of food ?

ENGLISH

1. Make tea/cook dal in presence of parents. Write names of ingredients you used and Write the recipe you followed.
2. What is your favorite food. How is it made? Draw picture of your favorite food.
3. Write 3 examples for each
 - i. Energy giving food -
 - ii. Body building Food -
 - iii. Protective food -

MATH

1. How many calories do you consumer in a day. Make a list for breakfast, lunch and dinner.
2. Prepare a bill for vegetables and fruits whatever you purchase in a week.
3. Paste pictures of some dry fruits and write their cost also.
4. Make a balanced diet of 10 years child with nutritional values

HINDI

1. अनुच्छेद लेखन – पौष्टिक आहार जीवन का आधार क्यों है?
2. अपने मनपसंद भोजन का नाम लिखिए तथा उसे बनाने की विधि लिखिए। उसमें प्रयोग आने वाली सामग्री के नाम लिखिए और उससे संबंधित चित्र भी चिपकाइए।
3. भोजन और स्वास्थ्य पर कोई दो नारे लिखिए।
4. भारत के विभिन्न राज्यों के खान-पान की जानकारी प्राप्त कीजिए तथा उन्हें भारत के मानचित्र पर दर्शाइए।

Summer Vacation Assignment

ART

1. Cartoon Drawing - Draw your favourite cartoon character.
2. Pattern Design - Create borders/designs using patterns.

KHEL YOGA

Make a practical file and Do write any 3 games of unit 1 & 2 in that practical file ...
Use one sided ruled or one sided blank pages for practical file

ASSAMESE.

১/অসমৰ জাতীয় সংগীত টো মুখস্থ কৰি প্ৰতিদিনে অভ্যাস কৰিবা।

২/A4 size পেপাৰ ত অসমীয়া ব্যঞ্জনবৰ্ণ খনৰ উচ্চাৰণ অনুসৰি ২টাকৈ শব্দ গঠন কৰি ছবি অংকন কৰিবা।

৩/ বিদ্যালয়, ঘৰ, কিতাপ, ফুল, গছ, নদী, বাগিচা, পাহাৰ
ওপৰোক্ত শব্দ কেইটাৰে ৪টাকৈ বাক্য সাজিবা।

D.L.

1. Create a guide on Internet Safety in your Notebook(any 5 rules) .
2. Learn to type without looking!

In your Notebook: Trace both of your hands. Inside the fingers, write which keys that finger is responsible for on a keyboard (e.g., Left Pinky finger = A, Q, Z). This helps with "Touch Typing"

LIBRARY

Students have to complete the following homework in their library notebook

1. Write a moral story in Hindi.
2. Write an essay on "School Library" in 200 words.
3. Write 10 quotes related with library or education. in English.

KENDRIYA VIDYALAYA ONGC JORHAT
SUMMER VACATION HOMEWORK
CLASS 6th

Science

1. A camel and a fish live in very different habitats.

Question: What problems would a camel face in water and a fish on land? Explain using adaptations.

2. Some plants in deserts have very small or no leaves.

Question: Why is this an advantage for them?

3. A polar bear has thick fur, while an elephant has large ears.

Question: How do these features help them survive in their habitats?

4. If a cactus is planted in a rainy area, what difficulties might it face? Why?

5. Grass → Deer → Tiger

Question: What will happen if all the deer disappear from this food chain?

6. In a pond, insects, frogs, and snakes are found.

Question: Make a simple food chain and explain what happens if frogs decrease.

7. Why are green plants always the starting point of a food chain?

8. Prepare a Multidisciplinary project(MDP) on the topic Biodiversity. Project should be of 5-6 pages. Include all the main subjects in it, keeping the main topic same. Prepare it on A4 size sheets.

संस्कृत

1. 1 से 3 चैप्टर के प्रश्नोत्तर लिख कर याद करके आर्येंगे।

2. संस्कृत में 10 वृक्षों के नाम, फलों के नाम ,10 श्लोक संस्कृत में लिख कर लायेंगे।

English

1. Prepare a dictionary with at least two four-letter words and their meanings for each letter of the alphabet (a-z).

2. Write 10 lines on Rama Natha based on your observations from the story.

3. Prepare a flowchart of the kinds of sentences.

हिन्दी

1. 10 पेज सुलेख (सुंदर लिखावट में लिखें)।

2. अपने देश के बारे में एक अनुच्छेद लिखो।

3. स्व-रचित कविता लिखो। (खुद की लिखी हुई कविता)

4. 'मातृभूमि' कविता की सभी गतिविधियों का अभ्यास करना है।

5. मेजर ध्यानचंद के बारे में जानकारी इकट्ठा करके लिखना है।

ART

1. Mandala Art (Simple) - Draw circular patterns.

2. Typography Art - Write your name in decorative style.

LIBRARY

Note- Students have to complete the following homework in A4 Size paper. And it will be submitted by the students in library on 17-06-2026.

1. Read your favourite novel or biography and write it's book review in approximately 150 -200 words.
2. Write an essay on " International Yoga Day " in 300 words in A4 size paper.
3. Write the 20 benefits of reading books.
4. Write the 15 characteristics or qualities essential to be a good Student.

KHEL YATRA

Make ground measurements of KHO-KHO & HANDBALL COURTS on A4 Size paper

VOCATIONAL EDUCATION

Instructions:

- Do all work neatly in a notebook/A4 sheets.
- Attach/draw pictures wherever possible.
- Focus on doing activities yourself.
- Submit in the first week after vacation.

PART A – BASIC UNDERSTANDING (20%)

Q1. Answer briefly:

1. What is vocational education?
2. What do you mean by dignity of labour?
3. Why should we respect all types of work?

PART B – MAIN PRACTICAL WORK (80%)

Activity 1: My Dream Profession

- Draw your dream job.
- Write why you like it and skills required.

Activity 2: Help at Home

Make a table:

Date | Work Done | What I Learned

Activity 3: Occupation Survey

Name of Work | Tools Used | Skills Needed | How they help us

Activity 4: Mini Kitchen Garden

Grow at least 2 plants and record weekly growth.

Activity 5: Seed Collection

Collect 3 seeds and write details.

Activity 6: Compost Making

Write materials used and learning.

Activity 7: Plant Growth Drawing

Draw stages of plant growth.

PART C – CREATIVE WORK

Activity 8: Poster Making

Activity 9: Write 3 slogans

Final Reflection

Write what you learned from these activities.

SOCIAL SCIENCE

1. Map work
 - a. Label and locate states and union territories on India Map and paste in your notebook.
 - b. Label and locate Continents and Oceans on World Map and paste in your notebook.
2. What is a Map? What are the different types of Maps? Explain.
3. Write about a tourist place of India which you like the most.
4. What are the three components of Maps? Explain with examples.
5. What are the Latitudes and Longitudes. Explain with diagram.
6. Write about them-
 - (i) Geologists
 - (ii) Palaeontologists
 - (iii) Anthropologists
 - (iv) Archaeologists.
7. Delhi's and Bengaluru's latitudes are 29°N and 13°N ; their longitudes are almost the same, 77°E . How much will be the difference in local time between the two cities? the name of India's neighboring nations.
8. Write the names of all the states and union territories of India and their capitals.
9. Write about the fundamental rights and duties of Indian citizens given by the Indian Constitution.
10. Write about on a local historical place nearby you.
11. What are the sources of History? Make a diagram of Sources of History. (Textbook Page no. 67)

ASSAMESE

১/অসমৰ জাতীয় সংগীত টো মুখস্থ কৰি প্ৰতিদিনে অভ্যাস কৰিবা।

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৩/ অসমৰ জাতীয় উৎসৱ বিহুৰ বিষয়ে ১০ শাৰী বাক্য লিখিবা।

MATHS

Objective: To recognize geometric elements in daily life.

1. Look around your house and find objects that represent the following. List the object and draw a rough sketch of the angle. (atleast 3 of each type)

- Acute Angle : (ex. ,a pair of open scissors)
- Right Angle :(ex. ,the corner of a door)
- Obtuse Angle :(ex.,a reclining chair)
- Straight Angle :(ex., a flat ruler)

KENDRIYA VIDYALAYA ONGC JORHAT

Summer Vacation Homework Class – 7th (Session – 2026-27)

Vocational Education

Theme: Plant Nursery & Gardening Skills

PART 1: SEED EXPLORATION (Day 1–10)

Activity 1: Seed Collection & Identification

- Collect 5–7 different types of seeds.
- Paste them and write name, source, size, color, shape.

Question: Which seed is the smallest and largest? Why?

Activity 2: Conditions for Germination

- Perform experiment with 3 conditions: water + sunlight, water only, no water.

Questions: Which condition is best? What are necessary conditions?

PART 2: GERMINATION PRACTICAL (Day 11–20)

Activity 3: Grow Seedlings

- Sow seeds, water daily, observe for 10 days.

Questions: When did sprouting start? What changes observed?

Activity 4: Draw Germination Stages

- Draw and label stages.

PART 3: MINI NURSERY PROJECT (Day 21–35)

Activity 5: Create Nursery

- Use pots, soil, manure, grow 2 plants.

Activity 6: Watering Practice

Questions: How often to water? Effects of overwatering?

Activity 7: Plant Care

Questions: Why sunlight is important? Problems faced?

PART 4: TRANSPLANTING (Day 36–45)

Activity 8: Transplanting

Questions: Why transplant? Precautions?

Activity 9: Growth Record Chart

- Maintain daily record.

PART 5: REFLECTION (Day 46–50)

Activity 10: Importance of Nursery

- Write importance and environmental benefits.

Activity 11: Family Interaction

- Write 5 points from discussion.

Activity 12: Creative Work

- Poster / Poem / Model

FINAL SUBMISSION:

Notebook, charts, photos, creative work.

Library

Note- Students have to complete the following Library homework in A4 Size paper. And it will be submitted by the students in library on 17-06-2026.

1. Read your favourite novel or biography and write its Book Review in approximately 150 -200 words.
2. Write an essay on " Importance of library in student life " in 300 words in A4 size paper.
3. Write 10 inspiring quotations related library or education in Hindi or English
4. Write the 15 characteristics or qualities essential to be a good Student.

Maths

Read the situations given below. Write appropriate expressions for each of them and find their values:

1. Gopal and Mohan supply milk to Hotel Sunlight. Gopal supplies 90L of milk every day and Mohan supplies 60L of milk every day.
 - a. Find the quantity of milk supplied by Gopal in a week.
 - b. Find the quantity of milk supplied by Mohan in a week.
 - c. Find the quantity of milk supplied by them in a week.
2. Binu earns 22,000 Rs. per month. She spends 5,000 Rs. on rent, 5,000 Rs. on food, and 3,000 Rs. on other expenses every month. What is the amount Binu will save by the end of a year?
3. Mala reads a three-page story every day except on Saturday and Sunday. Write an expression to show the number of stories she will read in 4 weeks.

हिंदी

1. ,१ से ३ चैप्टर तक के प्रश्नोत्तर लिख कर याद कर के लायेंगे,
2. हिंदी में आप 200 शब्दों में निबंध लिख कर लायेंगे (विषय : मेरे जीवन का लक्ष्य) ,
3. एक पत्र जिसमें आप प्राचार्य महोदय से 5 दिन के अवकाश की प्रार्थना करेंगे।

संस्कृत

1. 1 से 3 चैप्टर के प्रश्नोत्तर लिख कर याद करके आर्येंगे।,
2. संस्कृत में 10 वृक्षों के नाम, फलों के नाम ,10 श्लोक संस्कृत में लिख कर लायेंगे।

Social Science

1. Map work (Label and locate states and union territories with their capitals on India Map and paste in your notebook)
2. What are some key geographical features of India.
3. Write about a tourist place of India which you like the most.
4. What are the three main ranges of Himalaya? Explain.
5. Write about the 'Cold Desert of India'
6. Write a paragraph on World Environment Day (5 June).
7. Write about on a local historical place nearby you.
8. Write about the fundamental rights and duties of Indian citizens given by the Indian Constitution.
9. Write and learn the 'Preamble' of the Indian Constitution.
10. Imagine you are a historian studying ancient India. What types of sources (archaeological, literary, etc.) would you use to learn more about the mahājanapadas?

Khel Yatra

1. Make ground measurements of BADMINTON, KABADDI COURTS & FOOTBALL PLAYFIELD on A4 Size paper

Artificial Intelligence

Create a mini-dictionary in your Notebook:

Find one computer-related word for every letter of the alphabet.

A - Artificial Intelligence

B - Binary

C - Cloud Computing... and so on.

Draw a small icon of the word next to each word.

Art Education

1. Warli Art - Make simple tribal painting.

2. Shadow Drawing - Draw shadow of an object.

Assamese

১/ অসমৰ জাতীয় সংগীত টো মুখস্থ কৰি প্ৰতিদিনে অভ্যাস কৰিবা।

২/ A4 size পেপাৰত স্বৰবৰ্ণ মাত্ৰা লগাই ১০টাকৈ শব্দ গঠন কৰা।

৩/ অসমৰ জাতীয় উৎসৱ বিহুৰ বিষয়ে ১০ শাৰী বাক্য লিখিবা

English

1. Complete each of the following phrases with a suitable word:

- a) A ___ of ships b) A ___ of dancers c) A ___ of workers d) A ___ of spectators
e) A ___ of wolves f) A ___ of islands g) A ___ of dolphins h) A ___ of bees

2. Write the summary of the poem Try Again.

3. Write three examples of each of the following figures of speech:

Alliteration, Simile, Metaphor

4. Write your own sentences using these words. Also Write the meaning of each word:

Endeavour, Despair, Catamaran, Rustle, Toil

Science

1. Revise and learn chapter 2,3,4,5

2. Make a chart on the topics

(a) Digestive System of human

(b) Photosynthesis

3. What is bioluminescence? Name one insect which emit light without heating?

4. Paste the leaves and write the function of 4 medicinal plants .

KENDRIYA VIDYALAYA ONGC JORHAT

SUMMER VACATION HOMEWORK

CLASS – 8th (2026-27)

Assamese

১/অসমৰ জাতীয় সংগীত টো মুখস্থ কৰি প্ৰতিদিনে অভ্যাস কৰিবা।

২/A4 size পেপাৰত স্বৰবৰ্ণ মাত্ৰা লগাই ১০টাকৈ শব্দ গঠন কৰা।

৩/ নিজৰ বিদ্যালয় খানৰ বিষয়ে ১০ শাৰী বাক্য লিখিবা।

संस्कृत

1. 1 से 3 चैप्टर के प्रश्नोत्तर लिख कर याद करके आर्येंगे।
2. संस्कृत में 10 वृक्षों के नाम, फलों के नाम
3. 10 श्लोक संस्कृत में लिख कर लायेंगे।

हिंदी

1. १ से ३ चैप्टर तक के प्रश्नोत्तर लिख कर याद कर के लायेंगे,
2. हिंदी में आप 200 शब्दों में निबंध लिख कर लायेंगे (विषय : मेरे जीवन का लक्ष्य) ,
3. एक पत्र जिसमें आप प्राचार्य महोदय से 5 दिन के अवकाश की प्रार्थना करेंगे।
4. 20 विलोम ,10 पर्यायवाची (शेर, जल, कमल, लक्ष्मी, घर, चंद्रमा, सूर्य, पेड़, आकाश, धरती) सभी का दो-दो ।

Social science

1. Map work-
 - (i) Label and locate states and union territories with their capitals on India Map and paste in your notebook.
 - (ii) Label and locate Continents and Oceans on World Map and paste in your notebook.
2. Write the Fundamental Rights and Fundamental Duties of the Indian Constitution.
3. Write about a tourist place of India which you like the most.
4. What is the main purpose of the International Solar Alliance (IASE), launched by India and France?
5. How can India avoid the 'Natural Resource Curse'?
6. Differentiate between the administration under Delhi sultanate and under Mughal empire.
7. Write a paragraph on World Environment Day (5 June).
8. What are renewable resources? How are they different from non-renewable ones? What can people do to ensure that renewable resources continue to be available for our use and that of future generations? Give two examples.
9. Write about on a local historical place nearby you.

10. Write and learn the 'Preamble' of the Indian Constitution.
11. What are some considerations to keep in mind in the production of goods for our current use?

ART

1. Doodle Art - Fill a page with small creative doodles.
2. Emotion Drawing - Draw different facial expressions.

Khel Yatra

Make ground measurements of VOLLEYBALL COURT, TABLE TENNIS & ATHLETICS PLAYFIELD on A4 Size paper

A.I.

1.The "Smart Home" Design. Create a blueprint or model of a room that uses AI to solve a daily problem.

Task: Draw or build a 3D model of a "Smart Bedroom."

Feature: Include at least three AI sensors (e.g., automated lighting based on mood, a smart mirror that suggests outfits, or a bed that monitors sleep quality).

Write-up: Explain how each sensor uses Data Science, Computer Vision, or Natural Language Processing (NLP).

Science

1. Draw animal cells and plant cell side by side and write similarities and differences
2. Draw pictures showing some good habits for physical and mental health

Maths

Theme: Water Conservation and Engineering

1. The Square Pond*: A village decides to build a square rainwater harvesting pond. If the total surface area of the pond is 1,225 square meters, what is the length of one side of the pond?
2. *The Tiled Reservoir*: The base of a square water tank is covered with square tiles. If the base area is $2,116 \text{ cm}^2$, find the side length of the tank.
3. *Cubic Storage*: A municipal water department installs a perfectly cubic emergency water tank. If the tank holds exactly 13,312 liters of water (Note: $1,000 \text{ liters} = 1 \text{ m}^3$), what is the height of the tank in meters?

English

Q1 Write about the most memorable day in your life. Why is it memorable?

Q2 Write the synonyms and antonyms of the following words:

Abate

Absolve

Befogged

Fallacy
Sycophant
Perturbed
Mutinous
Heretic
Impute
Callous
Deride
Adamant
Glut
Jejune
Bustle

Q3 Define irony and explain its types.

Q4 Read any story about Tenali Rama and write its summary.

Library

Note- Students have to complete the following homework in A4 Size paper. And it will be submitted by the students in library on 17-06-2026.

1. Read your favourite novel or biography and write it's book review in approximately 150 -200 words.
2. Write an essay on “ International Yoga day “ in 300 words in A4 size paper.
3. Write the 20 benefits of reading books.
4. Write the 15 characteristics or qualities essential to be a good Student.

KENDRIYA VIDYALAYA ONGC JORHAT

SUMMER VACATION HOMEWORK

CLASS – 9th (2026-27)

विषय – हिन्दी

प्रश्न 1 उपसर्ग और प्रत्यय की परिभाषा बताते हुए उनमें अन्तर उदाहरण सहित समझाइए।

प्रश्न 2 संज्ञा, सर्वनाम, विशेषण और क्रिया की परिभाषा बताते हुए उसके भेद उदाहरण सहित समझाइए।

प्रश्न 3 वाक्य की परिभाषा बताते हुए अर्थ के आधार पर उसके भेद व दो-दो उदाहरण लिखकर समझाइए।

प्रश्न 4 अलंकार की परिभाषा बताते हुए अनुप्रास, यमक और श्लेष अलंकार के बारे में बताते हुए दो-दो उदाहरण लिखकर समझाइए।

प्रश्न 5 अपने मित्र को निबंध प्रतियोगिता में प्रथम आने पर बधाई देते हुए एक पत्र लिखिए।

प्रश्न 6 विद्यालय के प्राचार्य को खेल सामग्री उपलब्ध कराने हेतु एक प्रार्थना पत्र लिखिए।

प्रश्न 7 बस यात्रा के दौरान दो मित्रों (राम व श्याम) के बीच की गई बातचीत को 80 शब्दों में एक संवाद लिखिए।

प्रश्न 8 निम्नलिखित सभी विषयों पर संकेत बिंदुओं के आधार पर लगभग 300 शब्दों में अनुच्छेद लिखिए :

(i) साइबर सुरक्षा : जागरूकता ही समाधान

*साइबर सुरक्षा का अर्थ *वर्तमान में चर्चा का कारण *जागरूकता का प्रभाव

(ii) स्वस्थ जीवन-शैली - *स्वस्थ जीवन-शैली की आवश्यकता

*स्वस्थ आदतें जिनका पालन किया जाना चाहिए *स्वस्थ जीवन-शैली के लाभ

(iii) एक यादगार पारिवारिक अवकाश -

*कैसे मनाया? *यादगार क्यों है? * पारिवारिक अवकाश का महत्त्व

नोट-सभी विद्यार्थी ग्रीष्मकालीन छुट्टियों (Summer Vacation) के गृहकार्य को हिन्दी कॉपी में करेंगे

संस्कृत

१. एक से तीन पाठ तक चैप्टर के प्रश्नोत्तर ,तीन पत्र संस्कृत में , दो संवाद संस्कृत में ,लता, राम, नदी का शब्द रूप याद करें।

English

Q1 Prepare a neat flowchart on tenses with suitable examples for each type.

Q2 Imagine yourself as an oak tree in Ben Johnson's poem. Write a diary entry in which the oak tree reflects on its life and argues for its own importance and lasting significance.

Q3 Write a letter to the editor expressing concern about the increasing addiction to social media and technology among teenagers.

Math

1. *Scenario: The Smart City Park Project*

A city planner is designing a new triangular community park. On the city's digital grid (where 1 unit = 10 meters), the three corners of the park are located at the following coordinates:

- Entrance A: (2, 3)
- Entrance B: (8, 5)
- Entrance C: (5, 9)

The Tasks

1. *The Perimeter Fence*: Calculate the distance between Entrance A and Entrance B to determine how much fencing is needed for that side.
2. *The Central Fountain*: The planner wants to place a fountain at the centroid of the park (the point where the three medians meet). Find the coordinates of the fountain.
3. *The Turf Requirement*: Calculate the total area of the park to determine how much grass turf needs to be ordered.

Make proper figures and solve these questions

Social science

1. Map work (Label and locate states and union territories with their capitals on India Map and paste in your notebook)
2. Write about on a local historical place nearby you.
3. Write a paragraph on World Environment Day (5th June).
4. "Democracy is considered better than other forms of government." Justify the statement.
5. Explain the scope of Social Science by describing Geography, History, Political Science, and Economics, and show how they overlap in real life.
6. Write about the features of democracy.
7. Explain the major causes of floods in India and suggest effective flood management measures.
8. Describe the major seasons of India and explain the climatic conditions associated with each season.
9. What are the main functions of the Election Commission of India?
10. What are the challenges to free and fair elections in India?
11. Write the Fundamental Rights and Fundamental Duties of the Indian Constitution.
12. Write and learn the 'Preamble' of the Indian Constitution.

Science

Biology – 1. a) Imagine a cell as a small city or factory. Write a short description in your notebook:

- b) Compare at least 6 cell organelles with parts of a city (e.g., nucleus = control center)
- c) Explain the function of each organelle through this comparison
- d) Add a simple labeled diagram of your "cell city".

2. Activity: "When Cells Go Wrong – Understanding Cancer"

Cells normally divide in a controlled manner, but sometimes this control is lost, leading to cancer. Imagine you are explaining this to a younger student.

- a) What is cancer in terms of cell division?
- b) How is a cancer cell different from a normal cell? (any 3 points)

- c) Why is the cell cycle control important for our body?
d) Mention 2 factors that can lead to cancer (e.g., habits or environmental causes).
e) Draw a simple diagram comparing normal cell division and uncontrolled division.

Chemistry -1. Try segregating the things around you as pure substances or mixtures.

2. Classify each of the following as a homogeneous or heterogeneous mixture.

Soda water, wood, air, soil, vinegar, filtered tea.

3. How would you confirm that a colourless liquid given to you is pure water?

4. Define solute, solvent and solution?

5. Write a method to separate different gases from air.

6. Pragma tested the solubility of three different substances at different temperatures and collected the data as given below (results are given in the following table, as grams of substance dissolved in 100 grams of water to form a saturated solution).

(a) What mass of potassium nitrate would be needed to produce a saturated solution of potassium nitrate in 50 grams of water at 313 K?

(b) Pragma makes a saturated solution of potassium chloride in water at 353 K and leaves the solution to cool at room temperature. What would she observe as the solution cools? Explain.

c) Find the solubility of each salt at 293 K. Which salt has the highest solubility at this temperature?

d) What is the effect of change of temperature on the solubility of a salt?

Physics - 1. Discuss a real life situation where

(a) distance is equal to displacement.

(b) distance is greater than displacement

2. Write differences between speed and velocity.

Art Education

1. Logo Design - Create a logo for school/company.

2. Theme Collage - Topic: Nature / Pollution

Library

Note - Students have to complete the following homework in A4 Size paper. And it will be submitted by the students in library on 17-06-2026.

1. Read your favourite novel or biography and write its book review in approximately 150 -250 words in your own words.

2. Write the "benefits of Library for the development of society" in 300 words in A4 size paper.

3. Write those 10 inspirational thoughts which has made some positive changes in your life.

4. Write the 15 characteristics or qualities essential to be a good citizen or to be a good Student.

Assamese

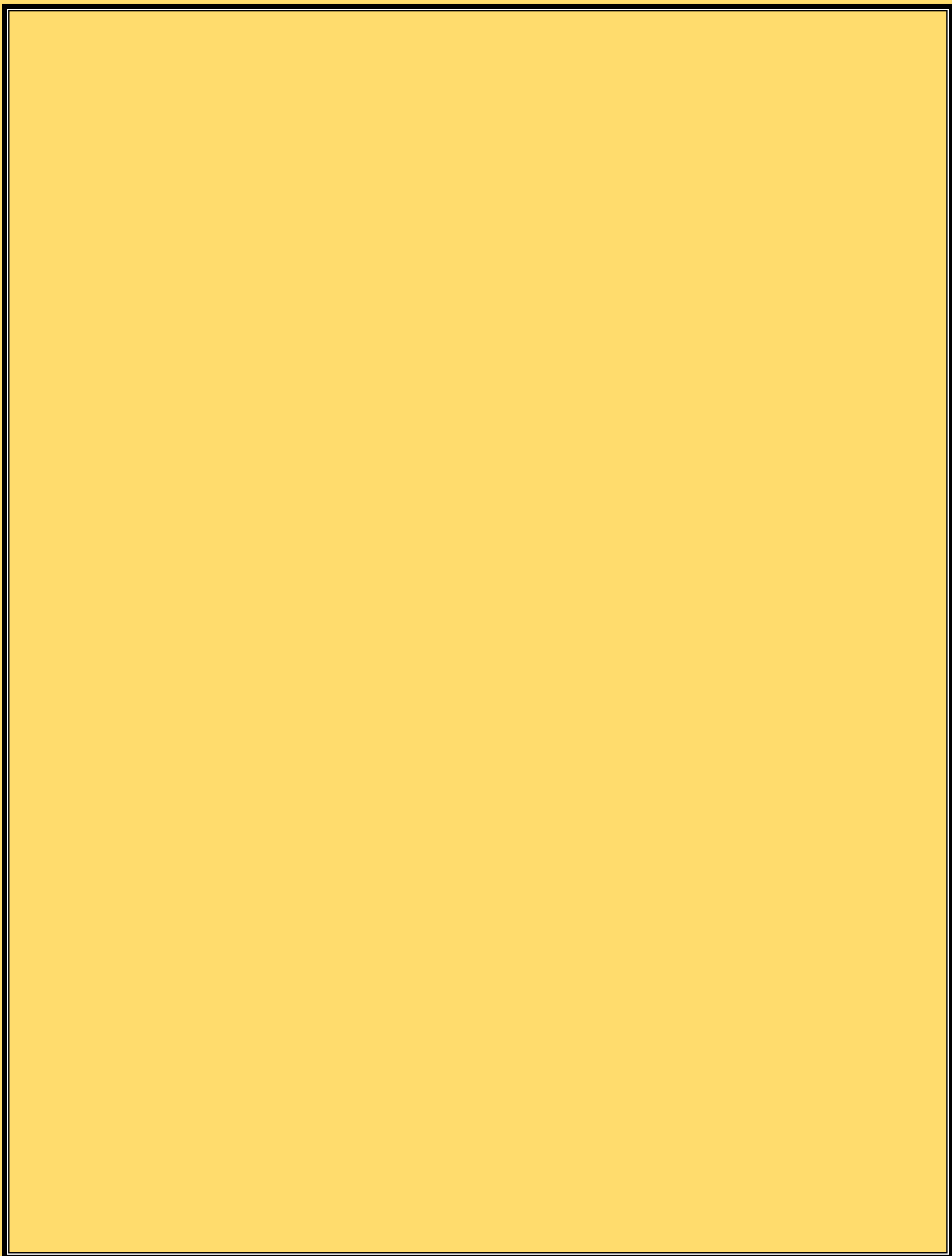
১/ অসমৰ জাতীয় সংগীত টো মুখস্থ কৰি প্ৰতিদিনে অভ্যাস কৰিবা।

২/ A4 size পেপাৰত স্বৰবৰ্ণ মাত্ৰা লগাই ১০টাকৈ শব্দ গঠন কৰা।

৩/ বহাগ বিহুৰ বিষয়ে ১০ শাৰী বাক্য লিখিবা।

A.I.

Either paste or write the questions in your AI notebook mentioned in the pdf shared in class group.



KENDRIYA VIDYALAYA ONGC JORHAT
SUMMER VACATION HOMEWORK
CLASS – X (2026-27)

SOCIAL SCIENCE

1. Map work (Label and locate states and union territories with their capitals on India Map and paste in your notebook)
2. Do Map practice of History and Geography.
3. “Money in your pocket cannot buy all the goods and services that you may need to live well.” Justify the statement with example.
4. What are the different forms of power sharing in modern democracies? Give an example of each of these.
5. Write the Ethnic composition of Belgium and Sri Lanka.
6. What criteria does UNDP compare to measure the human development index? Explain.
7. Briefly trace the process of German and Italy unification.
8. What steps did the French revolutionaries take to create a sense of collective identity among the French people? Write any five.
9. Prepare a project in a project file on the topic “Consumer Rights”. (15-20 A4 size papers)
10. Learn and revise all the completed chapters. (Economics, History and Civics)
11. Briefly trace the geographical and ethnic variations of the Balkans region. Why did this region become politically very explosive?
12. What was the main aim of the Treaty of Vienna 1815? What were the main provisions of the Treaty of Vienna held in 1815?

SCIENCE

BIOLOGY

1. Solve questions (from 5 Sample question papers) chapter -Life Processes.
2. Prepare a project file on management of Natural Resources.

CHEMISTRY

Activity

Write and explain any 5 real-life chemical reactions (e.g., rusting of iron, digestion of food, burning of fuel).

Activity

Prepare a chart showing types of chemical reactions with examples and diagrams.

- Explain the types of chemical reactions with examples:
 - Combination
 - Decomposition
 - Displacement
 - Double displacement
- Explain oxidation and reduction with suitable examples.
- What is corrosion? How can it be prevented?
- What is rancidity? How can it be prevented?

PHYSICS

1. Draw ray diagrams for image formation by a concave mirror when an object is placed at 6 different places as applicable
2. Make a table for the above

Sanskrit

संस्कृत : १. एक से 5 पाठ तक चैप्टर के प्रश्नोत्तर ,तीन पत्र संस्कृत में , दो संवाद संस्कृत में , सभी संस्कृत प्रत्यय के १० _
१० उदाहरण ,सभी संधि के 10 उदाहरण,तत्पुरुष समास सभी किताब के एक जगह लिख कर याद करें।

ENGLISH

Art Integrated Project: (Use a Scrapbook)

- Q1: Read the lesson 'Nelson Mandela - Long Walk to Freedom' and write about apartheid system, about Nelson Madela & his visionary in brief. 10
Collect pictures of the prominent personalities mentioned in the lesson and write brief notes about them. 10
- Q2: Read the lesson 'Glimpses of India' & collect pictures of Coorg, or Kodagu and its coffee plantation. Write about the people of Coorg in about 150 words. 5
Collect pictures of tea plantation in Assam and write the Chinese and Indian legends about discovery of Tea. 5
- Q3. Read the lesson 'Sermon At Benares' and collect pictures of Gautam Buddha, paste on your Scrapbook. How did he get his wisdom? 5
Write the story of Gotami in about 100 words and paste pictures too. 5

ASSAMESE

- ১/অসমৰ জাতীয় সংগীত টো মুখস্ব কৰি প্ৰতিদিনে অভ্যাস কৰিবা।
২/A4 size পেপাৰত স্বৰবৰ্ণ মাত্ৰা লগাই ১০টাকৈ শব্দ গঠন কৰা।
৩/ বহাগ বিহুৰ বিষয়ে ১০ শাৰী বাক্য লিখিবা।

ART

1. Perspective Cityscape - Draw city with depth.
2. Mixed Media Art - Combine colour + paper + texture.

HINDI

- प्रश्न 1 उपसर्ग और प्रत्यय की परिभाषा बताते हुए उनमें अन्तर उदाहरण सहित समझाइए।
प्रश्न 2 संज्ञा, सर्वनाम, विशेषण और क्रिया की परिभाषा बताते हुए उसके भेद उदाहरण सहित समझाइए।
प्रश्न 3 वाक्य की परिभाषा बताते हुए रचना के आधार पर उसके भेद व दो-दो उदाहरण लिखकर समझाइए।
प्रश्न 4 अलंकार की परिभाषा बताते हुए उपमा, रूपक, मानवीकरण, उत्प्रेक्ष्या और अतिशयोक्ति अलंकार के बारे में बताते हुए दो-दो उदाहरण लिखकर समझाइए।
प्रश्न 5 अपने मित्र को निबंध प्रतियोगिता में प्रथम आने पर बधाई देते हुए एक पत्र लिखिए।
प्रश्न 6 विद्यालय के प्राचार्य को खेल सामग्री उपलब्ध कराने हेतु एक प्रार्थना पत्र लिखिए।
प्रश्न 7 बस यात्रा के दौरान दो मित्रों (राम व श्याम) के बीच की गई बातचीत को 80 शब्दों में एक संवाद लिखिए।
प्रश्न 8 निम्नलिखित सभी विषयों पर संकेत बिंदुओं के आधार पर लगभग 300 शब्दों में अनुच्छेद लिखिए :
(i) साइबर सुरक्षा : जागरूकता ही समाधान
*साइबर सुरक्षा का अर्थ *वर्तमान में चर्चा का कारण *जागरूकता का प्रभाव

AI

1. Write all the MCQs/ Exercise questions of UNIT 1 of Part A and Part B in AI notebook.
2. Learn all the chapters done till date.

MATH

SECTION A : Multiple Choice Questions (1 Mark Each)

Chapter 1 — Real Numbers (MCQ)

- Q1. The HCF of 52 and 130 is: (a) 26 (b) 13 (c) 52 (d) 65 [1M]
Q2. Which of the following is irrational? (a) 0.14 (b) 0.14141414... (c) 0.1416...(non-recurring) (d) 0.1414 [1M]
Q3. The decimal expansion of $17/8$ is: (a) terminating (b) non-terminating repeating (c) non-terminating non-repeating (d) none of these [1M]
Q4. If $\text{LCM}(26, 91) = 182$, then $\text{HCF}(26, 91) = ?$ (a) 13 (b) 26 (c) 7 (d) 91 [1M]

Chapter 2 — Polynomials (MCQ)

- Q5. If α and β are zeroes of $2x^2 - 5x + 3$, then $\alpha\beta = ?$ (a) $5/2$ (b) $3/2$ (c) $-3/2$ (d) $-5/2$ [1M]
Q6. The number of zeroes of the polynomial whose graph cuts the x-axis at 3 points is: (a) 1 (b) 2 (c) 3 (d) 4 [1M]

Chapter 3 — Pair of Linear Equations (MCQ)

- Q7. The pair $3x + 2y = 5$ and $6x + 4y = 10$ represents: (a) intersecting lines (b) parallel lines (c) coincident lines (d) perpendicular lines [1M]
Q8. For what value of k does $kx + 3y = 1$ and $6x + ky = 2$ have no solution? (a) 3 (b) -3 (c) 6 (d) -6 [1M]

Chapter 4 — Quadratic Equations (MCQ)

- Q9. The roots of $x^2 - 7x + 12 = 0$ are: (a) 3, 4 (b) $-3, -4$ (c) 3, -4 (d) $-3, 4$ [1M]
Q10. The discriminant of $3x^2 - 2x + 1/3 = 0$ is: (a) 0 (b) 4 (c) -4 (d) 8 [1M]

SECTION B : Very Short Answer Questions (2 Marks Each)

- Q11. Find HCF and LCM of 8, 9 and 25 by prime factorisation. [2M]
Q12. Prove that $5 - 2\sqrt{3}$ is irrational, given that $\sqrt{3}$ is irrational. [2M]
Q13. Find the zeroes of $p(x) = 4x^2 - 4x - 3$ and verify the relationship between zeroes and coefficients. [2M]
Q14. Find a quadratic polynomial whose zeroes are $(2 + \sqrt{3})$ and $(2 - \sqrt{3})$. [2M]
Q15. Solve: $3x - 5y = 4$ and $9x = 2y + 7$ by the substitution method. [2M]
Q16. For what value of k will the system $2x + ky = 1$ and $3x - 5y = 7$ have a unique solution? [2M]
Q17. Is it possible to design a rectangular plot whose perimeter is 40 m and area is 400 m^2 ? Form the quadratic equation. [2M]
Q18. Find the roots of $2x^2 - 5x + 3 = 0$ by factorisation. [2M]
Q19. Why is $6 \times 7 \times 8 \times 9 + 9$ a composite number? [2M]
Q20. Using Euclid's division lemma, show that the square of any positive integer is of the form $3m$ or $3m + 1$. [2M]

SECTION C : Short Answer Questions (3 Marks Each)

- Q21. Prove using Euclid's algorithm that $\text{HCF}(n, n+1) = 1$ for any positive integer n . [3M]
Q22. Show that $3\sqrt{2}$ is irrational. [3M]
Q23. Divide $p(x) = x^3 - 3x^2 + 4x - 3$ by $g(x) = x - 2$ and verify the Division Algorithm. [3M]
Q24. If α and β are the zeroes of $x^2 - 6x + 4$, find the value of (i) $\alpha^2 + \beta^2$ (ii) $1/\alpha + 1/\beta$ (iii) $(\alpha - \beta)^2$ [3M]
Q25. Solve graphically: $x + y = 6$ and $x - y = 2$. Find the area of the triangle formed with the y-axis. [3M]
Q26. A fraction becomes $4/5$ when 1 is added to each of the numerator and denominator. It becomes $7/10$ when 1 is subtracted from each. Find the fraction. [3M]
Q27. Places A and B are 100 km apart on a highway. One car starts from A and another from B at the same time. If they travel in the same direction, they meet in 5 hours. If they travel towards each other, they meet in 1 hour. Find their speeds. [3M]
Q28. Find the roots of $1/(x+4) - 1/(x-7) = 11/30$, $x \neq -4, 7$. [3M]
Q29. A plane travels 3000 km at uniform speed. If the speed had been 100 km/h more it would have taken 1 hour less. Find the speed. [3M]
Q30. Find the nature of roots of: (i) $5x^2 - 4x + 1 = 0$ (ii) $x^2 - 2x + 1 = 0$. If real, find them. [3M]

SECTION D : Long Answer Questions (5 Marks Each)

Q31. Use Euclid's division algorithm to find the HCF of 4052 and 12576. Also express HCF as a linear combination. [5M]

Q32. Prove that $\sqrt{5}$ is irrational. Use it to prove that $2 - 3\sqrt{5}$ is irrational. [5M]

Q33. Draw the graph of $x - y + 1 = 0$ and $3x + 2y - 12 = 0$. Determine the coordinates of the vertices of the triangle formed by these lines and the x-axis and find its area. [5M]

Q34. Find all zeroes of $2x^4 - 9x^3 + 5x^2 + 3x - 1$ if two of its zeroes are $(2 + \sqrt{3})$ and $(2 - \sqrt{3})$. [5M]

Q35. The sum of ages of a father and his son is 45 years. Five years ago, the product of their ages was 124. Find their present ages using a quadratic equation. [5M]

Q36. A takes 6 days less than B to complete a piece of work. If both work together they complete it in 4 days. How many days will B alone take? [5M]

SECTION E : Case Study Based Questions (4 Marks Each)

Q37. [Case Study] The school canteen sells samosas at Rs 8 each and juice at Rs 15 each. On a day, total items sold were 150 and total revenue was Rs 1650. (i) Set up a pair of linear equations. [2M] (ii) Find the number of samosas and juice bottles sold. [2M] [4M]

Q38. [Case Study] A factory manufactures two types of screws — Type A and Type B. Type A requires 2 min and Type B requires 3 min on a machine. Machine runs 8 hours/day. A combined order of 200 screws is received. (i) Frame the equations. [2M] (ii) Find the number of each type if machine runs exactly 8 hours. [2M] [4M]

Q39. [Case Study] Two friends Aman and Bimal start cycling towards each other from towns 120 km apart. Aman's speed is 10 km/h more than Bimal's. They meet after 4 hours. (i) Form and solve a pair of equations for their speeds. [3M] (ii) Who would reach the other's town first? [1M] [4M]

Q40. [Case Study] A ball is thrown vertically upward. Height h (m) after t seconds: $h = -5t^2 + 30t$. (i) When does the ball reach maximum height? Find the max height. [2M] (ii) After how many seconds does it hit the ground? [2M] [4M]

SECTION F : Higher Order Thinking Skills — HOTS (3–4 Marks Each)

Q41. [HOT] Prove that the cube of any positive integer is of the form $9m$, $9m+1$ or $9m+8$. [3M]

Q42. [HOT] If α and β are roots of $x^2 - px + q = 0$, form a quadratic equation whose roots are α/β and β/α . [3M]

Q43. [HOT] The sum of three consecutive even integers is 54 more than the smallest. Find all three integers. [3M]

Q44. [HOT] Solve: $(a - b)x + (a + b)y = a^2 - 2ab - b^2$ and $(a + b)(x + y) = a^2 + b^2$. [4M]

Q45. [HOT] If one root of $kx^2 - 14x + 8 = 0$ is six times the other, find k . [3M]

Q46. [HOT] If the ratio of the sum of first n terms of two A.P.s is $(7n + 1) : (4n + 27)$, find the ratio of their 9th terms. (Hint: Use this as a quadratic investigation.) [4M]

Q47. [HOT] Prove that if p is prime and p divides a^2 , then p divides a . Use this to prove \sqrt{p} is irrational for any prime p . [4M]

Q48. [HOT] The hypotenuse of a right triangle is 1 m more than twice the shortest side. The third side is 7 m less than the hypotenuse. Find all sides. [3M]

Q49. [Creative HOT] Design a real-life situation leading to the quadratic equation $2x^2 - 11x + 15 = 0$. Solve it and interpret the answers in context. [4M]

Q50. [Creative HOT] Find all values of p for which the equation $px^2 - 8x + p = 0$ has real roots. For $p = 4$, verify by computing the roots. [4M]

LIBRARY

1. Read your favourite novel or biography and write its book review in approximately 150 -250 words in your own words.
2. Write the "benefits of Library for the development of society" in 300 words in A4 size paper.
3. Write those 10 inspirational thoughts which has made some positive changes in your life.
4. Write the 15 characteristics or qualities essential to be a good citizen or to be a good Student.

KENDRIYA VIDYALAYA ONGC JORHAT

SUMMER VACATION HOMEWORK 2026-27

CLASS – 12th

CHEMISTRY

1. Complete all the given practical in chemistry practical copy.
2. Make a list of all the laws of chapter 1,2,3 and state them in your notebook.
3. Make a list of all the formulas which are applied to solve the problems of chapter 1,2,3 and write them in details.
4. Solve all the questions from NCERT of chapter 1,2 without fail.

PHYSICS

1. Solve previous year questions from chapter 1 i. e. Electric charges and fields

BIOLOGY

1. Solve questions (from 5 Sample question papers) Unit VI.
2. Prepare a project file on the topics provided in class.

PAT

Complete chapter 1 in Notebook

Write all the answers along with the questions and colour the flow charts or diagrams in answers.

Computer Science

1. Prepare practical file (soft copy)
2. Do the Given worksheet.

MATHEMATICS

RELATIONS and FUNCTIONS

1. Show that the function $f: R \rightarrow R$ is given by $f(x) = x^3$ is injective.
2. Show that the relation R in the set $\{1, 2, 3\}$ given by $R = \{(1, 2), (2, 1)\}$ is symmetric but neither reflexive nor transitive.

3. Check the injectivity of $f : \mathbb{R} \rightarrow \mathbb{R}$, $f(x) = x^3$.
4. Let $A = \mathbb{R} \setminus \{3\}$ and $B = \mathbb{R} - \{1\}$. Consider the function $f: A \rightarrow B$ defined by $f(x) = (x-2)/(x-3)$. Is f one-one and onto? Justify your answer.
5. Show that the relation R on A , $A = \{x; x \in \mathbb{Z}, 0 \leq x \leq 12\}$ defined as $R = \{(a, b): |a - b| \text{ is multiple of } 3\}$, is an equivalence relation.
6. Show that the modulus function $f: \mathbb{R} \rightarrow \mathbb{R}$, given by $f(x) = [x]$ is neither one-one nor on-to.
7. Prove that R is an equivalence relation, where $R: \mathbb{N} \times \mathbb{N} \rightarrow \mathbb{N}$ defined as $(a, b) R (c, d)$ if and only if $ad(b+c) = bc(a+d)$.
8. Let \mathbb{N} be the set of natural numbers and R be the relation in $\mathbb{N} \times \mathbb{N}$ defined by $(a, b) R (c, d)$ if and only if $a+d=b+c$. Show that R is an equivalence relation.

INVERSE TRIGONOMETRIC FUNCTIONS

1. Find the principal value of the following:
 a) $\sin^{-1}\left(\frac{1}{\sqrt{2}}\right)$ b) $\cos^{-1}\left(\frac{-1}{\sqrt{2}}\right)$ c) $\tan^{-1}\left(\frac{-1}{\sqrt{3}}\right)$ d) $\operatorname{cosec}^{-1}(-2)$ e) $\sec^{-1}\left(-\frac{2}{\sqrt{3}}\right)$
2. Find the value of the following:
 a) $\sin^{-1}\left(\sin \frac{3\pi}{5}\right)$ b) $\cos^{-1}\left(\cos \frac{13\pi}{6}\right)$ c) $\tan^{-1}\left(\tan \frac{7\pi}{6}\right)$ d) $\operatorname{cosec}^{-1}\left(\operatorname{cosec} \frac{\pi}{8}\right)$
3. Evaluate the following:
 a) $\sin\left\{\frac{\pi}{3} - \sin^{-1}\left(\frac{-1}{2}\right)\right\}$ b) $\sin\left(\frac{1}{2} \cos^{-1}\frac{4}{5}\right)$ c) $\tan\frac{1}{2}\left(\cos^{-1}\frac{\sqrt{5}}{3}\right)$.
4. Evaluate: $\cos\left(\sin^{-1}\frac{3}{5} + \cos^{-1}\frac{12}{13}\right)$

MATRICES and DETERMINANTS

- 1) If A and B are symmetric matrices of the same order, then prove that $AB + BA$ is a symmetric matrix
- 2) If A is a square matrix, then Prove that $A - A'$ is a skew-symmetric matrix
- 3) Construct 2×3 matrix $A = [a_{ij}]$ whose elements a_{ij} is given by $a_{ij} = \frac{(2i+j)^2}{3}$
- 4) Find X and Y if $2X + Y = \begin{bmatrix} 4 & 4 & 7 \\ 7 & 3 & 4 \end{bmatrix}$, $X - 2Y = \begin{bmatrix} -3 & 2 & 1 \\ 1 & -1 & 2 \end{bmatrix}$
- 5) Find x and y if $A = \begin{bmatrix} 2 & 3 \\ 1 & 2 \end{bmatrix}$ so that $A^2 - xA + yI = 0$ hence find inverse of A .
- 6) Express the matrix as sum of symmetric and skew-symmetric matrices $\begin{bmatrix} 2 & -1 & 4 \\ 5 & 4 & 2 \\ 4 & 3 & 1 \end{bmatrix}$

8) The sum of three numbers is 6. If 3rd number is multiplied by 2 and first number is added, we get 7 and by adding second and third number to 3 times the first number we get 12. Use matrix method to find the numbers.

9) If $A = \begin{bmatrix} 1 & 0 \\ -1 & 7 \end{bmatrix}$, find k such that $A^2 - 8A + kI = 0$.

10) Express A as a sum of symmetric and a skew symmetric matrix. $A = \begin{bmatrix} 1 & 5 \\ -1 & 2 \end{bmatrix}$

11) Use the product $A = \begin{bmatrix} 1 & -1 & 2 \\ 0 & 2 & -3 \\ 3 & -2 & 4 \end{bmatrix} \begin{bmatrix} -2 & 0 & 1 \\ 9 & 2 & -3 \\ 6 & 1 & -2 \end{bmatrix}$ to solve the system of equations

$$x - y + 2z = 1, 2y - 3z = 1, 3x - 2y + 4z = 2$$

12) Solve for x : $\begin{bmatrix} 1 & 3 & 2 \\ 2 & 5 & 1 \\ 15 & 3 & 2 \end{bmatrix} \begin{bmatrix} 1 \\ 2 \\ x \end{bmatrix} = 0$

13) Let $A = \begin{bmatrix} 2 & 3 \\ -1 & 2 \end{bmatrix}$ then show that $A^2 - 4A + 7I = 0$ and also calculate A^5 .

14) Find the matrix X such that $\begin{bmatrix} 2 & -1 \\ 0 & 1 \\ -2 & 4 \end{bmatrix} X = \begin{bmatrix} -1 & -8 & -10 \\ 3 & 4 & 0 \\ 10 & 20 & 10 \end{bmatrix}$