



St. XAVIER'S HIGH SCHOOL

EDUCATION FOR ALL

BANKURA, WB
Affiliation No.: 2430130

Affiliated to CBSE (New Delhi) 10+2 level
School Code: 15720

WINTER VACATION ASSIGNMENT (2025-2026)

CLASS-IX

SUBJECT: ENGLISH

1. You went to a national park for Nature Study where you saw some of your peers throwing stones at the animals. You immediately complained to the authorities. Write a diary entry detailing your experience. Do not exceed 120 words.

2. Write a story in 120-150 words with the help of the following outline .

Tortoise and hare – good friends – tortoise – known for his slow speed – hare has fast speed – makes fun of tortoise – challenges him – referee selected – race starts – hare overconfident – takes a nap – tortoise wins.

SUBJECT: BENGALI

1. 'ছুটি' গল্পের মূলভাবটি নিজের ভাষায় লিখ।
2. 'জন্মভূমি আজ' কবিতার সারমর্ম নিজের ভাষায় লিখ।
3. তোমার বিদ্যালয়ের 'বার্ষিক ক্রীড়া প্রতিযোগিতা' বিষয়ে একটি প্রতিবেদন রচনা করো।
4. তোমার বিদ্যালয়ের 'বার্ষিক ক্রীড়া প্রতিযোগিতা'য় কে কী প্রতিযোগিতা নেবে, সেই জানিয়ে একটি বিজ্ঞপ্তি রচনা করো।
5. 'বসন্তের দোল উৎসব' এর একটি চিত্র অঙ্কন করে সেই সম্পর্কে দশটি বাক্য লিখ।

SUBJECT: HINDI

- प्रश्न 1. 'रीढ़ की हड्डी' एकांकी के आधार पर शंकर की चारित्रिक विशेषताओं को लिखिए।
- प्रश्न 2. ' बिना विचारे जो करे सो पाछे पछताए' इसको आधार बनाकर एक लघु कथा लिखिए।
- प्रश्न 3. आप छात्रावास में रहते हैं। अपनी माता जी को पत्र लिखकर वहां की दिनचर्या के बारे में बताएं।
- प्रश्न 4. कविता बच्चे काम पर जा रहे हैं, पढ़कर आपके मन में जो विचार उत्पन्न हुआ, उसे अपने शब्दों में लिखिए।
- प्रश्न 5. महादेवी वर्मा और उनकी साथिने स्वाधीनता आंदोलन में किस प्रकार आर्थिक सहयोग प्रदान करती थीं।

SUBJECT: MATHEMATICS

WORKSHEET: MATHEMATICS
CLASS: IX (2024-25)
NUMBER SYSTEM

Multiple Choice Questions

1. The product of any two irrational numbers is:

- (A) always an irrational number
- (B) always a rational number
- (C) always an integer
- (D) sometimes rational, sometimes irrational

2. The value of $1.999\dots$ in the form $\frac{p}{q}$, where p and q are integers and $q \neq 0$, is:

- (A) $\frac{19}{10}$
- (B) $\frac{1999}{1000}$
- (C) 2
- (D) $\frac{1}{9}$

3. $2\sqrt{3} \times \sqrt{3} + 1$ is equal to :

- (A) $2\sqrt{9}$
- (B) 6
- (C) 7
- (D) $4\sqrt{6}$

4. Between two rational numbers:

- (A) there is no rational number
- (B) there is exactly one rational number
- (C) there are infinitely many rational numbers
- (D) there are only rational numbers and no irrational numbers

5. which of the following is equal to x?

- (A) $x^{\frac{12}{7}} - x^{\frac{5}{7}}$
- (B) $\sqrt[12]{(x^4)^{\frac{1}{3}}}$
- (C) $(\sqrt{x^3})^{\frac{2}{3}}$
- (D) $x^{\frac{12}{7}} \times x^{\frac{7}{12}}$

Short Answer Type Questions

6. Find the three rational numbers between:

- (i) -1 and -2
- (ii) 0.1 and 0.11
- (iii) $\frac{5}{7}$ and $\frac{6}{7}$
- (iv) $\frac{1}{4}$ and $\frac{1}{5}$

7. Represent geometrically the following numbers on the number line:

- (i) $\sqrt{4.5}$
- (ii) $\sqrt{5.6}$
- (iii) $\sqrt{8.1}$
- (iv) $\sqrt{2.3}$

8. Simplify $16^{-\frac{1}{4}} \times \sqrt[4]{16}$

9. Find the value of x in $3 + 2^x = (64)^{\frac{1}{2}} + (27)^{\frac{1}{3}}$.

10. If $a = -2$, $b = -1$, then find $a^{-b} - b^a$.

Long Answer Type Questions

11. If $x = \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$ and $y = \frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$, find the value of $x^2 + y^2 + xy$.

12. If $x = \frac{2-\sqrt{5}}{2+\sqrt{5}}$ and $y = \frac{2+\sqrt{5}}{2-\sqrt{5}}$, find the value of $x^2 - y^2$.

13. Determine rational numbers p and q if

$$\frac{7+\sqrt{5}}{7-\sqrt{5}} - \frac{7-\sqrt{5}}{7+\sqrt{5}} = p - 7\sqrt{5}q.$$

14. Simplify: $\frac{6}{2\sqrt{3}-\sqrt{6}} + \frac{\sqrt{6}}{\sqrt{3}+\sqrt{2}} - \frac{4\sqrt{3}}{\sqrt{6}-\sqrt{2}}$

15. Simplify: $\frac{3\sqrt{2}}{\sqrt{6}-\sqrt{3}} + \frac{2\sqrt{3}}{\sqrt{6}+2} - \frac{4\sqrt{3}}{\sqrt{6}-\sqrt{2}}$

16. Show that: $\frac{1}{3-\sqrt{8}} - \frac{1}{\sqrt{8}-\sqrt{7}} + \frac{1}{\sqrt{7}-\sqrt{6}} - \frac{1}{\sqrt{6}-\sqrt{5}} + \frac{1}{\sqrt{5}-2} = 5$

17. If: $x = \frac{\sqrt{p+q} + \sqrt{p-q}}{\sqrt{p+q} - \sqrt{p-q}}$, then find the value of $qx^2 - 2px + q$.

18. Show that: $\frac{x^{-1}+y^{-1}}{x^{-1}} + \frac{x^{-1}-y^{-1}}{x^{-1}} = \frac{x^2+y^2}{xy}$

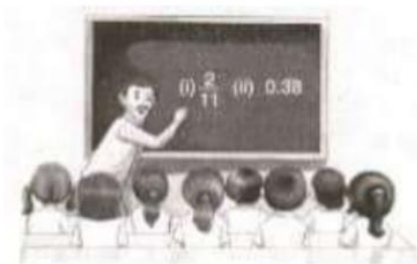
19. If $x = 2 + 3\sqrt{2}$, then find the value of $\left(x + \frac{14}{x}\right)$.

20. Find the value of a and b in the following:

(i) $\frac{5+2\sqrt{3}}{7+4\sqrt{3}} = a - b\sqrt{3}$

(ii) $\frac{\sqrt{2}+\sqrt{3}}{3\sqrt{2}-2\sqrt{3}} = a + b\sqrt{6}$

21. To judge the preparation of student's class IX on topic " Number System" Mathematics teachers write two numbers on black board (as shown in figure), and asks some questions about the members, which are following, then answer the question:



- (i) Write the decimal form of $2/11$
- (ii) Write the p/q form of 0.38.
Write the decimal expansion of $2/11$.
- (iii) If p/q form of 0.38 is m/n, then find the value of (m + n)

WORKSHEET: MATHEMATICS
CLASS: IX (2024-25)
POLYNOMIALS

Multiple Choice Questions

1. The degree of the polynomial $3x^3 - x^4 + 5x + 3$ is:
(A) 3 (B) -4 (C) 4 (D) 1
2. If $p(x) = 5x^2 - 3x + 7$, then $p(1)$ equals to
(A) -10 (B) 9 (C) -9 (D) 10
3. If $\frac{x}{y} + \frac{y}{x} = -1$, ($x, y \neq 0$), then the value of $x^3 - y^3$ is
(A) 1 (B) -1 (C) 0 (D) $\frac{1}{2}$
4. The remainder when $f(x) = x^3 - 2x^2 + 6x - 2$ is divided by $(x - 2)$, is
(A) 5 (B) 8 (C) -10 (D) 10
5. If $(x + 1)$ and $(x - 1)$ are the factors of $f(x) = ax^3 + bx^2 + cx + d$, then
(A) $a + b = 0$ (B) $b + c = 0$ (C) $b + d = 0$ (D) $a + d = 0$

Short Answer Type Questions

6. If $f(x) = 2x^3 - 15x^2 + 15x + 2$, find $f(2)$ and $f(-3)$.
7. If $x = 2$ is a root of the polynomial $f(x) = 2x^2 - 3x + 7a$, find the value of a .
8. Check whether the polynomial $f(x) = 4x^3 + 4x^2 - x - 1$ is a multiple of $2x + 1$.
9. If $x + 1$ is a factor of the polynomial $2x^2 - kx$, then find the value of k .
10. Find the coefficient of x^2 in $(x^2 - 2)^3$.
11. Find the value of (using identity only) i) $249^2 - 248^2$ ii) 95×96 .

Long Answer Type Questions

12. Expand : i) $\left(\frac{1}{x} + \frac{y}{3}\right)^3$
ii) $\left(4 - \frac{1}{3x}\right)^3$
13. $x + \frac{1}{x} = 3$, find the value of $x^2 + \frac{1}{x^2}$ and $x^3 + \frac{1}{x^3}$.
14. If $x - 2y = 11$ and $xy = 8$, find the value of $x^3 + 8y^3$.

15. If $p(x) = x^3 + 3x^2 - 2x + 4$, find the value of $p(-2) + p(1) + p(0)$.

16. If $a + b + c = 6$ and $ab + bc + ca = 11$, find the value of $a^3 + b^3 + c^3 - 3abc$.

17. Using identities, find the product of

i) $(x + 1)(x - 1)(x^2 + 1)(x^4 + 1)$.

ii) $(x - \frac{y}{5} - 1)(x + \frac{y}{5} - 1)$.

18. Rationalise the denominator and simplify:

$$\frac{2\sqrt{6}-\sqrt{5}}{3\sqrt{5}-2\sqrt{6}}$$

19. Simplify

$$\frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}} + \frac{\sqrt{5}-\sqrt{3}}{\sqrt{5}+\sqrt{3}}$$

20. Find the value of $\frac{6}{\sqrt{5}-\sqrt{3}}$, it being given that $\sqrt{3} = 1.732$ and $\sqrt{5} = 2.236$.

21. On one day, principal of a particular school visited the classroom. Class teacher was teaching the concept of polynomial to students. He was very much impressed by her way of teaching. To check, whether the students also understand the concept taught by her or not, he asked various questions to students. Some of them are given below. Answer them.



i) Find the value of a , when $x + 1$ is a factor of $x^3 - 2ax^2 + 16$.

ii) Find the value of k , when $x - 1$ is a factor of $4x^3 - 3x^2 - 4x + k$.

iii) How many zeroes are there in the polynomial $x^2 + 4x + 2$.

COMPLETE THE MATHEMATICS LAB MANUAL.

PREPARE A CHART ON THE RULES OF ALGEBRA AND MENSURATION.

SUBJECT: SCIENCE

BIOLOGY

ANSWER THE FOLLOWING HOTS QUESTIONS:

1. If the plasma membrane of a cell becomes completely permeable, what will happen to the cell? Explain.
2. Plant cells do not burst in hypotonic solutions, unlike animal cells. Give reasons.
3. Why is cardiac muscle called involuntary even though it is striated?
4. Compare xylem and phloem based on structure and function.
5. How does crop rotation improve soil fertility?

ASSERTION AND REASON QUESTIONS:

1. Assertion (A): Cardiac muscles work continuously throughout life.

- Reason (R): They are involuntary and do not get fatigued easily.
2. Assertion (A): Simple squamous epithelium is present in alveoli of lungs.
Reason (R): It allows rapid diffusion of gases.
3. Assertion (A): Excessive use of fertilizers reduces soil fertility in the long run.
Reason (R): It kills useful soil microorganisms.
4. Assertion (A): Mixed cropping reduces the risk of total crop failure.
Reason (R): Different crops have different nutrient requirements.

CHEMISTRY

Physical and Chemical Changes

Roll no : 1-10

Experiment 1: To study the reactions that take place between iron and copper sulphate solution in water and to identify the type of change.

Roll no : 11-20

Experiment 2: To study the reaction when magnesium ribbon is burnt in air and to identify the type of change.

Roll no : 21-30

Experiment 3:

To study the reaction between zinc and dilute sulphuric acid and to classify the type of change.

Roll no : 31-40

Experiment 4:

To study and identify the changes that occur when copper sulphate crystals are heated.

Roll no : 41-56

Experiment 5:

To study and identify the reaction and type of change between the aqueous solutions of sodium sulphate and barium chloride

SUBJECT: SOCIAL SCIENCE

A. Prepare the project report on 'Disaster Management' according to the assigned Roll no.

Information regarding the project.

1. The project should be in handwritten form in A4 sheets. No Printed Project is accepted.
2. The project must contain pictures (Mandatory).
3. Staple the pages before submitting it in a channel file.
4. The project must contain the following points:
 - a. Cover Page (School name, school logo, name of topics, students name, class, subject, session, roll number, guided by in printed form only.
 - b. Certificate with place for teacher signature in printed form only.
 - c. Acknowledgement
 - d. Index
 - e. Introduction
 - f. Main content (Introduction to Disaster management with special emphasis on the topic assigned, meaning, definition, causes, effects, Mitigation measures, Case study.)
 - g. Conclusion
 - h. Bibliography

TOPIC

ROLL NO. ASSIGNED

1. Earthquake :- 1,9,17,25,33,41,49

2. Tsunami :- 2,10,18,26,34,42,50

3. Drought :- 3,11,19,27,35,43,51

4. Cyclone :- 4,12,20,28,36,44,52

5. Industrial Hazards.	:-	5,13,21,29,37,45,53
6. Landslide.	:-	6,14,22,30,38,46,54
7. Volcanic Eruption	:-	7,15,23,31,39,47,55
8. Flood.	:-	8,16,24,32,40,48,56

SUBJECT: AI

1. Write python code for the following program and submitted in a channel file with proper colour front page:

1. To print personal information like Name, Father’s Name, Class, School Name and subject
2. To print the following patterns using multiple print commands-

a)

```
*
* *
* * *
* * * *
* * * * *
```

b)

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

3. To find square of number 7
4. To find the sum of two numbers 15 and 20.
5. To convert length given in kilometers into meters.
6. To print the table of 5 up to ten terms.
7. To calculate Simple Interest if the principle_amount,rate_of_interest and time input by user.

8. Program to check if a person can vote or not.
9. To check the grade of a student
10. Input a number and check if the number is positive, negative or zero and display an appropriate message
11. To print the first 10 natural numbers .
12. To print the first 10 even numbers using decision making statements.
13. To print odd numbers from 1 to n .
14. To print the sum of the first 10 natural numbers .
15. Program to find the sum of all numbers stored in a list.
16. To calculate Area and Perimeter of a rectangle
17. To calculate Area of a triangle with Base and Height
18. To calculate Surface Area and Volume of a Cuboid