GURU HAR RAI ACADEMY

MATHEMATICS

HOLIDAY HOME WORK

CLASS IX

Q1 Factorise the following questions-:

i) $a^6 + 8a^3 + 7$ ii) $x^3 - 7x + 6$ iii) $x^2 - \left(\frac{a+b}{a} + \frac{a}{a+b}\right)x + 1$ iv) $4x^4 + 81y^4$

v) $(1 + x)^2(1+y^2) - (1+y)^2(1+x^2)$ vi) $2(p+q)^2 - 7(p+q) + 6$ vii) $x^2 + \frac{1}{4x^2} + 1 - 3 - \frac{3}{2x}$

viii) $7x^3 + 56y^3$ ix) $24a^3 + 37a^2 - 5a$ x) $(x^2 + y^2 - z^2)^2 - 4x^2y^2$ xi) $\frac{x^4}{4} + \frac{y^4}{4}$

Q2 If $x^4 + \frac{1}{x^4} = 623$, find $x + \frac{1}{x}$ and $x - \frac{1}{x}$

Q3 If $x^2 + \frac{1}{x^2} = 27$,find If $x^3 - \frac{1}{x^3}$

Q4 If the number x is 5 more than the number y and the sum of the squares of x and y is 37, find the product of x and y.

Q5 If $a^2 + 6a + x = (a + 3)^2$,find the value of x.

Q6 Simplify-: $(2a - 1)^2 - (2a-3)(2a+1)$

Q7 If If $x - \frac{1}{x} = \sqrt{5}$, find the value of -: i) If $2x^2 + \frac{2}{x^2}$ ii) $2x + \frac{2}{x}$ iii) $2x^3 + \frac{2}{x^3}$

Q8 Find the coefficient of x^2 and x in the product (x-1)(x+3)(x-4)

Q9 If p +q = 1 + p.q prove that-: $p^3 + q^3 = 1 + p^3q^3$

Q10 If $\tan\theta + \cot\theta = 3$,find the value of $tan^2\theta + cot^2\theta$

Q11 If 3cosA – 4sinA =0, evaluate $\frac{SinA+2CosA}{3cosA-sinA}$

Q12 If Cosec $\theta = \sqrt{2}$, find the value of $\frac{1+cos^2\theta+sin^2\theta}{sec^2\theta+1-tan^2\theta}$

Q13 Prove that -: $(1 + \cot^2\theta)(1+\cos\theta)(1 - cos\theta) = 1$

Q14 Prove that-: $\sqrt{\frac{1+tan^2\theta}{1+cot^2\theta}} = \tan\theta$

Q15 If $\sin 43^0 = p$, then find the value $\cos 43^0$

Q16 If $\sin\theta = \frac{1}{2}$ and $\cos\omega = \frac{\sqrt{3}}{2}$, then find the value of $\frac{tan\theta+tan\omega}{1-tan\theta.tan\omega}$

Q17 If $4\sin^2\theta - 1 = 0$ where θ is an acute angle ,find the value of $\cos^2\theta + Tan^2\theta$

Q18 Evaluate-: $3\sin^2 45^0.\cos 0^0.\text{Cosec}30^0 - 2\text{Sec}^2 45^0.\text{Cot}^2 30^0 + \sin 60^0$

Q19 Prove that-: $\frac{1}{tanA+cotA} = CosA.SinA$

Q20 Evaluate-: $\text{cosec}^2 57^0 - \tan^2 33^0 + \cos 44^0.\text{cosec}46^0 - \sqrt{2}\cos 45^0 - \tan^2 60^0$

Do the chapter test of chapters 3,4,17 and 18 in holiday home work notebook.

ENGLISH

LITERATURE: - Project work

1. Write about the Shakespeare's life and work in a table form or in passage form along with literary devices, used by him in most of his works.
2. Study Merchant of Venice, by Shakespeare and write the character sketch of Portia.
3. Compare and contrast the characters of Antonio and Shylock in table form.

Note: - Above project work should be done in a file.

LANGUAGE:-

1. Make a table of certain changes of Transformation and direct and indirect speech.
2. Write 30 quotations\proverbs on 'success'.
3. Write your views on "Your attitude decides your altitude of success." In 350-400 words.

Note: - Language home work should be done in class work notebook.

COMPUTER APPLICATIONS

You want to create a class Football.Choose the elements to be used as characteristics and behaviour from the list given below:
Ball,Goalkeeper,Making a goal, Defender,Forward player,passing ball, Referee, Hitting corner,making fault

Characteristics	Behaviours

Q(2) Make a Power point Presentation on Elements of **OOPs**

SUBJECT: BIOLOGY

- **Prepare L-1 to 3 for I U.T.**
- Prepare a Lab. Manual and do the following experiments in it.

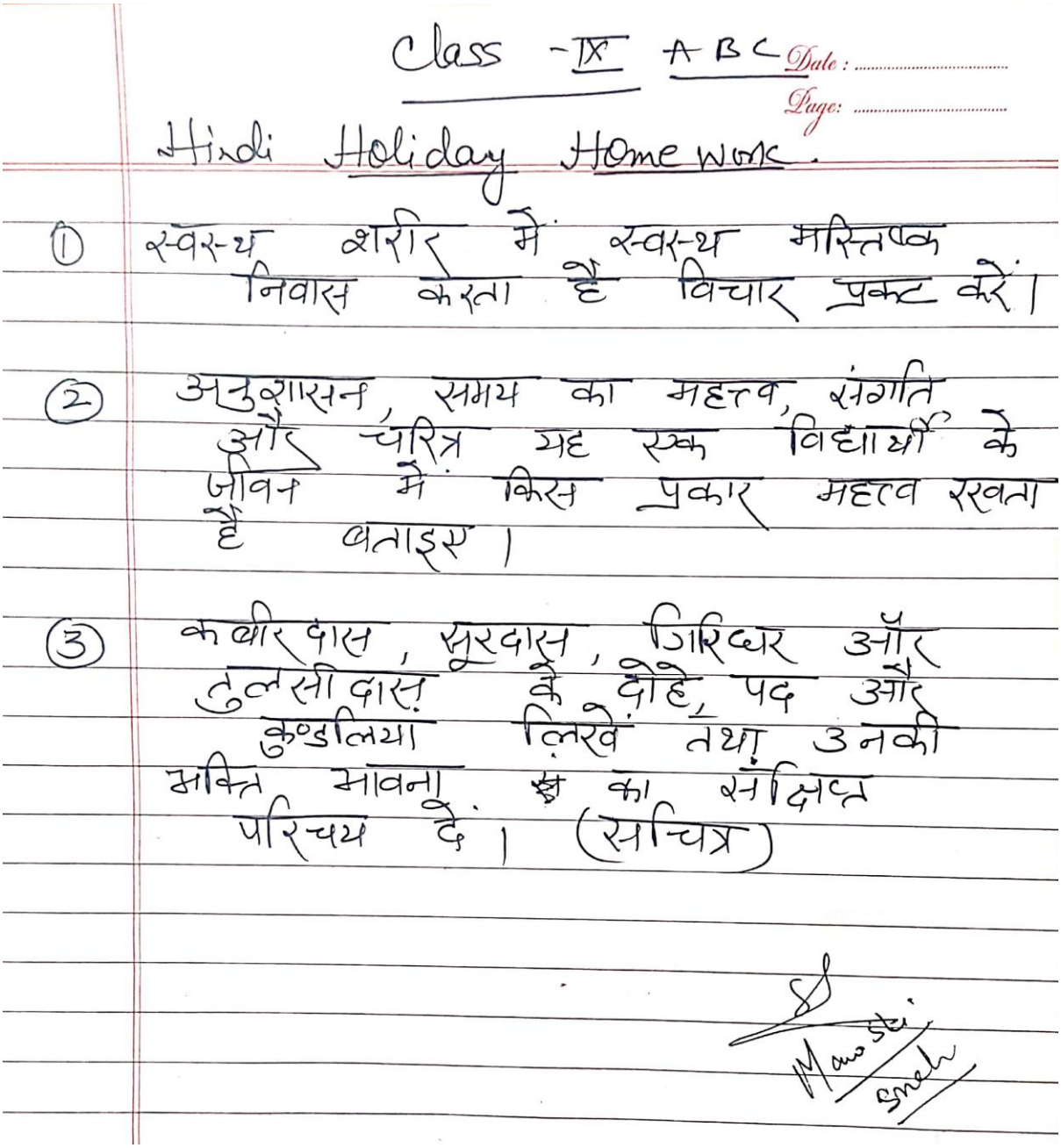
i. To examine an onion peel under the microscope to study various parts of the cell.
ii. To become familiar with the parts of a flowering plant-Hibiscus.
iii. To study the structure of germinating seed.
iv. To study the mechanism of breathing.
v. To identify the structure of the lungs.

SUBJECT: CHEMISTRY

- Complete all the practice sheets given in class.
- Make a chart on Radicals and Valency.

SUBJECT: PHYSICS

- Revise all the topics thoroughly which have been taught in class.
- Solve additional numerical from other books at least 20(in your notebook).
- Prepare Lab. Manual and write the following experiments.
  - i. To determine the diameter of a bob with the help of Vernier calipers.
  - ii. To determine the extension in the spring against load.
  - iii. To determine acceleration due to gravity with the help of a simple pendulum.
  - iv. To verify the laws of reflection.
  - v. To draw the magnetic field lines of force of a bar magnet either N-pointing N or N-pointing S-position.



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Hindi Holiday Homework.

① स्वस्थ शरीर में स्वस्थ मस्तिष्क निवास करता है विचार प्रकट करें।

② अनुशासन, समय का महत्व, संगति और चरित्र यह एक विद्यार्थी के जीवन में किस प्रकार महत्व रखता है बताइए।

③ कबीरदास, सूरदास, गिरिधर और तुलसीदास के दोहे, पद और कुण्डलिया लिखें तथा उनकी भक्ति भावना का संक्षिप्त परिचय दें। (सचित्र)