

**SELAQUI INTERNATIONAL SCHOOL**  
**WINTER VACATION 2017-18**

**CLASS IX**

**ENGLISH**

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**Gulliver's Travels (Literature)**

1. Draw a story line, as taught in class, to illustrate your understanding of the important events that happened in part 1 and 2 of Gulliver's Travels.
2. What is your opinion about the King of Lilliput and Brobdingnag? What do you think so?

**Idioms and reviews (Language)**

1. Find 20 new idioms (apart from those done in class) along with their meanings.
2. Watch any English movie of your choice and write a review on the same. It should not be more than 300 words.

**Research**

1. Please conduct a research, using digital resources, on any one of the following. The report may include pictures and should not be more than 600 words.
  - King Tutankhamen;
  - The Indian navy
  - Second wave of feminism
  - Gujarat elections 2017
  - FIFA cup
  - World war 2
  - Magic realism
  - The hardy boys

**HINDI**

प्रश्न-1 दिए गए विषयों पर 120 शब्दों में अनुच्छेद लिखिए :

- क) प्रदूषण या प्रकृति का असंतुलन
- ख) सत्संगति : संस्कारों की जननी
- ग) मन के हारे हार है , मन के जीते जीत

प्रश्न-2 पत्र लेखन:

- क) बड़ी बहन को विद्यालय के वार्षिकोत्सव का वर्णन करते हुए पत्र लिखिए ।
- ख) नीचे दिए गए समाचार को पढ़कर मन में जो विचार आते हैं , उन्हें अपने मित्र को पत्र के रूप में लिखिए ।

मित्र की माता का आकस्मिक निधन हो जाने पर अत्यंत दुःख हुआ । समाचार मिलने पर उस पर विश्वास करना संभव नहीं हो पा रहा है । माँ के चले जाने का अर्थ होता है, शीतल छाया और आँचल से मिलने वाले प्यार का समाप्त हो जाना ।

प्रश्न-3 विज्ञापन लेखन

क) चित्रकला प्रदर्शनी के आयोजन हेतु विज्ञापन लेखन कीजिए ।

ख) आपकी कंपनी एक नया उत्पाद (PRODUCT) बाज़ार में उतार रही है, उसकी विशेषताएँ बताते हुए विज्ञापन तैयार कीजिए ।

प्रश्न-4 स्वर, व्यंजन व विसर्ग संधि के सभी नियम याद करें तथा प्रत्येक नियम के पाँच-पाँच उदाहरण लिखें ।

प्रश्न-5 अनुस्वार , अनुनासिक व नुक्ते के प्रयोग वाले 50-50 शब्द लिखिए ।

## MATHEMATICS

1. Find the values of a and b:  $\frac{7+3\sqrt{5}}{3+\sqrt{5}}$

2. Represent  $\sqrt{3}$  on the number line.

3. Simplify:  $3\sqrt[3]{40} - 4\sqrt[3]{320} - \sqrt[3]{5}$

4. Find the value of  $\left(\frac{64}{125}\right)^{\frac{-2}{3}} + \frac{1}{\left(\frac{256}{625}\right)^{\frac{1}{4}}} + \frac{\sqrt{25}}{\sqrt[3]{64}}$

5. Express the following in the form of  $\frac{p}{q}$ :

a)  $0.4\bar{7}$

b)  $5.6\bar{13}$

6. Find two irrational numbers between  $1/7$  and  $2/7$

7. Find the zero of:

a)  $3x + 5$

b)  $x - 6$

c)  $4x - 11$

8. Expand using identity:

a)  $(3x - 5y + 2y)^2$

b)  $(5x - 2y)^3$

c)  $(6x + 2y)^3$

9. Factorise:

a)  $343x^3 + 64y^3$

b)  $216a^3 - 125b^3$

c)  $x^3 - 8y^3 - 36xy - 216$

d)  $25a^2 - 35a + 12$

e)  $a^2 + 11a + 30$

10. If  $x^2 + \frac{1}{x^2} = 23$ , then find the value of  $x^3 + \frac{1}{x^3}$

11. Find the value of k if  $x - 1$  is a factor of  $4x^3 + 3x^2 - 4x + k$ .

12. Find the value of k if  $x + 2$  is a factor of  $3x^2 - kx + 6$ .

13. Using remainder theorem, factorise:

a)  $x^3 - 23x^2 + 142x - 120$

b)  $x^3 + 13x^2 + 32x + 20$

c)  $6x^3 - 25x^2 + 32x - 12$

d)  $x^3 - 3x^2 - 9x - 5$

14. Plot the points A(-3,-3), B(3,-3), C(3,3) D(-3,3) in the Cartesian plane. Also find the length of the line segment AB.

15. Plot the following points on the graph sheet and join them in order B(-5,3), E(-3,-2), S(4,-2), T(1,3). Also mention the quadrants in which the points lie.

16. Find 3 solutions of the linear equation  $2x + 5y = 13$

17. Draw the graph of  $x + y = 4$

18. Draw the graph of  $x + y = 6$  and  $x - y = 4$  on the same graph. Also find the point of intersection.

19. Draw the graph of  $3x + 2y = 12$

20. Plot the graph of the following equations on the same graph sheet:

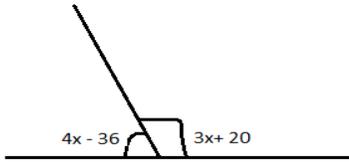
$$y = 2x + 3, \quad y = 2x - \frac{3}{2}, \quad 2x - y = 0$$

21. Write any six axioms given by Euclid.

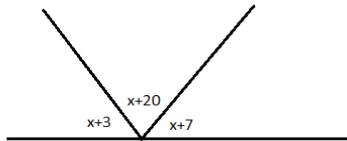
22. Write all the five postulates given by Euclid.

23. Find x:

a)



b)



24. Three cubes each of the side 3 cm are joined end to end. Find the surface area of the resulting cuboid.

25. The curved surface area of a right circular cylinder of height 14 cm is  $88\text{cm}^2$ . Find the volume of the cylinder.

26. The diameter of a roller is 84 cm and its length is 120 cm. It takes 500 revolutions to move once over to level a playground. Find the area of the playground in  $\text{m}^2$ .

27. 10 cylindrical pillars of a building have to be painted. If the diameter of each pillar is 50 cm and the height is 4 m, what will be the cost of painting at rate of Rs. 14 per square metre?

28. A cylinder 6 m high, is open at the top. The circumference of its base is 22 m. Find its total surface area.

29. Curved surface area of a cone is  $308\text{cm}^2$  and its slant height is 14 cm. Find i) radius of the base ii) total surface area of the cone.

30. The curved surface area of a right circular cone is  $12320\text{cm}^2$ . If the radius of its base is 56 cm, find its height.

31. The circumference of the base of a 10 m high conical tent is 44 m. Calculate the length of the canvas used in making the tent if width of the canvas is 2m.

32. The radius and slant height of a cone are in the ratio 4:7. If its curved surface area is  $792\text{cm}^2$ , find its height.

33. Find the radius of a sphere whose surface area is  $154\text{cm}^2$ . Also find the volume.

34. Given below are the marks obtained by a group of 90 students in a Mathematics test of 100 marks.

Marks	0-20	20-30	30-40	40-50	50-60	60-70	70-100
No. of students	7	10	10	20	20	15	8

Find the probability that a student obtained:

a) less than 20% marks.

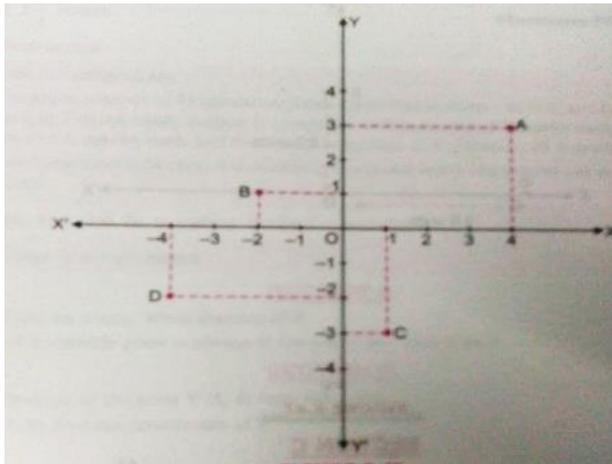
b) 60 or more marks.

35. Prepare frequency polygon with the help of histogram from the following data:

Classes of marks	Number of students
0 – 20	7
20 – 40	15
40 – 60	20
60 – 80	15
80 – 100	20
100 – 120	8
Total	65

How many students got marks 50 or more than 50?

36. Find the coordinates of the points A, B, C, and D?



37. The mean of 50 observations was found to be 80.4. But later on it was discovered that 96 was misread as 69 at one place. Find the correct mean.

38. If  $ab+bc+ca=36$  and  $a^2+b^2+c^2=85$ , then find  $a+b+c$ .

39. Using suitable identity find  $\frac{87^3+13^3}{87^2-87\times 13+13^2}$

40. Find the remainders when  $3x^3 - 4x^2 + 7x - 5$  is divided by  $(x - 3)$  and  $(x+3)$ .

41. For what value of 'a' the polynomial  $2x^3 + ax^2 + 11x + a + 3$  is exactly divisible by  $2x - 1$ .

42. Show that  $2x+1$  is a factor of  $2x^3 - 11x^2 - 4x + 1$ .

43. Polynomials  $kx^3 + 3x^2 - 3$  and  $2x^3 - 5x + k$ , when divided by  $x - 4$  leave the same remainder in each case. Find the value of k.

44. If the polynomial  $x^4 - 2x^3 + 3x^2 - ax + 8$  is divided by  $x - 2$ , it leaves the remainder 10. Find the value of 'a'.

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

46. Fifty seeds were selected at random from each bags A,B,C,D,E of seeds, and were kept under standardized conditions equally favourable to germination. After 20 days, the number of seeds which had germinated in each collection were counted and recorded as follows:

Bag	A	B	C	D	E
Number of seeds germinated	40	48	42	39	41

What is the probability of germination of:

- a) more than 40 seeds in a bag?
- b) 49 seeds in a bag?
- c) more than 35 seeds in a bag?

47. Find the value of p, if the mean of the following distribution is 7.5.

X	3	5	7	9	11	13
F	6	8	15	P	8	4

48. **ACTIVITY:**

**Make a chart on pack of 52 playing cards. Display the following things:**

- a) 4 suits
- b) 13 spade cards
- c) 13 Club cards
- d) 13 diamond cards
- e) 13 heart cards
- f) Face cards (4 Kings, 4 Queens, 4 Jacks)

49. **ACTIVITY:**

- a) Make a chart containing formulae based on the shapes - cube, cuboid, cylinder, cone, sphere and hemisphere.

## SCIENCE

### (PHYSICS AND CHEMISTRY)

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**Analytical analysis of the velocities of the valence electrons in the first 20 elements of the Modern Periodic Table by using the tools of Newtonian Mechanics and commenting on the validity of the laws of motion in the atomic (quantum) world.**

You will perform the following steps in sequence to generate the relevant data. An example for the 1<sup>st</sup> element has been done for you.

**Step 1:** Hydrogen (H) with atomic number (Z) = 1, mass of electron (m) =  $9.1 \times 10^{-31}$  kg, radius of hydrogen atom (r) = distance of the valence electron from the nucleus of the H-atom = 53 pm =  $53 \times 10^{-12}$  m [Use this resource for the values of atomic radius for the first 20 elements: <http://periodictable.com/Properties/A/AtomicRadius.an.html>]

**Step 2:** For every shell in the atom, there are discrete values for the angular momentum (L) and so the angular momentum is quantized. Thus, the following relation proposed by Bohr is satisfied.

$$mvr = \frac{nh}{2\pi} \quad (1)$$

where, m is the mass of electron, v is the velocity of the electron, r is the atomic radius, h is the Planck's constant  $6.626 \times 10^{-34}$  Js and n is the shell number of the valence electron,

E.g. for H, n = 1 and for Na, n = 2.

**Step 3:** Calculate the velocity of the electron from the above relation as shown below for H-atom.

$$9.1 \times 10^{-31} \times v \times 53 \times 10^{-12} = \frac{1 \times 6.626 \times 10^{-34}}{2 \times 3.14} \quad (2)$$

$$\Rightarrow v = 2.187 \times 10^6 \text{ m/s} \quad (3)$$

If we compare the calculated velocity of the valence electron to the speed of light ( $3 \times 10^8$  m/s), then the speed of the electron comes out to be within 1% of the speed of light.

**Step 4:** Kinetic energy of the electron (E) will be given by

$$E = \frac{1}{2}mv^2 = \frac{1}{2} \times 9.1 \times 10^{-31} \times (2.187 \times 10^6)^2 = 2.178 \times 10^{-18} \text{ J} \quad (4)$$

**Step 5:** One can use the following relation to solve for the force acting on the electron.

$$\text{Work done or Energy} = F \cdot s \quad (5)$$

where displacement (s) = radius of the atom.

$$\text{So, } E = F \cdot r \Rightarrow F = \frac{E}{r} \quad (6)$$

Substituting the energy obtained and the radius of the atom in the above relation, we can obtain for the H – atom,

$$F = \frac{2.178 \times 10^{-18}}{53 \times 10^{-12}} = 4.109 \times 10^{-8} \text{ N} \quad (7)$$

**Step 6:** Perform the same set of calculations for the rest of the 19 elements, starting from helium and ending at calcium.

For a moment, compare the force on a cricket ball of mass 150 g delivered by a bowler at 90 km / hr which makes contact with the pitch for a time of 0.003 s. The force acting on it would be, from Newton's second law of motion, 1250 N. Thus, the force acting on a cricket ball is  $\frac{1250}{4.109 \times 10^{-8}} \approx 30 \times 10^9 = 30 \text{ billion times}$  that on a valence electron in an H-atom.

So, it can be concluded that atomic motions may occur at high speed, but the atomic forces are very small compared to those we deal with every day of our lives. But then, the following question arises.

If the electron is held to the atom with such weak forces and it is moving at such high speeds in the outermost shell, shouldn't it be flying apart from the nucleus? And then matter, as we know it, should cease to exist? However, we know that this is not the case and we can hold and throw things with velocities and forces in the real world.

**Comment on the following questions.**

- How does the applicability of Newton's laws of motion hold in the atomic scale?
- Plot the velocities and forces on the valence electron as a function of the atomic number and radius of the atom. From the graph, what can you conclude about the relation between the size and mass of the atom and their respective relation to the validity of the laws of motion?

## SOCIAL STUDIES

### Assignment -PROJECT

**Topic- Elections in India (Democratic Politics); Word Limit-350-500 words**

**Instructions:**

**Make a project on the "16<sup>th</sup> LOK SABHA ELECTIONS" of India.**

Your project must cover the following sub-topics:

- Election dates
- Campaign
- Parties and alliances who contested the elections
- Controversies
- How many people turned out to vote
- Results
- Illustrate your project with pictures/ newspaper articles or any other relevant information to supplement your project.

**The project report should be developed and presented in this order-**

- Cover page showing project title, student information, school and year
- List of contents with page numbers.

- Acknowledgements (acknowledging the institution, offices and libraries visited and persons who have helped).
- Project Overview: Purpose, Aim, Methodology and experiences while doing the project.
- Chapters with relevant headings.
- Summary and conclusions based on findings.
- Bibliography: should have the Title, pages referred, author, publisher, year of publication and if a website the name of the website with the specific website link which has been used.
- All the photographs and sketches should be labeled and acknowledged.

**Marks will be allocated for the following aspects-**

- Content, Accuracy and Originality
- Presentation and Creativity
- Submission of Project on time (1<sup>st</sup> day of classes after holiday). Project not submitted on the day will not be considered for evaluation.
- Viva

**BOOK-KEEPING**

**Work sheet of Journal Entry and Ledger Posting**

1.		Distinguish between Book Keeping and Accountancy.
2	2015 Dec.01  Dec.09 Dec.12 Dec.18 Dec.25 Dec.30	Journalise the following transactions in the books of Himanshu: Business started with cash ₹ 75,000 Dec.07 Purchased goods for cash ₹ 10,000. Sold goods to Swati ₹ 5,000. Purchased furniture ₹ 3,000. Cash received from Swati in full settlement ₹ 4,000. Paid rent ₹ 1,000. Paid salary ₹ 1,500
3.	2016 Jan.01 Jan.02 Jan.03 Jan.05 Jan.08 Jan.12 Jan.14 Jan.16 Jan.18 Jan.20 Jan.22 Jan.25	Enter the following Transactions in the Journal of Mudit: Commenced business with cash ₹ 1,75,000, Building ₹ 1,00,000. Goods purchased for cash ₹ 75,000. Sold goods to Ramesh ₹ 30,000. Paid wages ₹ 500. Sold goods for cash ₹ 10,000. Paid for trade expenses ₹ 700. Cash received from Ramesh ₹ 29,500 Discount allowed ₹ 500. Goods purchased for Sudhir ₹ 27,000. Cartage paid ₹ 1,000. Drew cash for personal use ₹ 5,000. Goods use for house hold ₹ 2,000. Cash paid to Sudhir ₹ 26,700 Discount allowed ₹ 300.
4.	2014 Dec.01 Dec.02 Dec.04 Dec.06 Dec.10 Dec.13 Dec.16 Dec.20 Dec.22	Journalise the following transactions: Hema started business with cash ₹ 1,00,000. Open a bank account with SBI ₹ 30,000. Purchased goods from Ashu ₹ 20,000. Sold goods to Rahul for cash ₹ 15,000. Bought goods from Tara for cash ₹ 40,000 Sold goods to Suman ₹ 20,000 Received cheque from Suman ₹ 19,500 Discount allowed ₹ 500 Cheque given to Ashu on account ₹ 10,000 Rent paid by cheque ₹ 2,000

	Dec.23	Deposited into bank ₹ 16,000
	Dec.25	Machine purchased from Parigya ₹ 10,000
	Dec.26	Trade expenses ₹ 2,000
	Dec.28	Cheque issued to Parigya ₹ 10,000
	Dec.29	Paid telephone expenses by cheque ₹ 1,200
	Dec.31	Paid salary ₹ 4,500
5.	Dec. 2014 1	Journalise the following transaction in the Book of M/s Beauty traders. Also post them in the ledger. Started business with cash ₹ 2,00,000.
	2	Bought office furniture ₹ 30,000.
	3	Paid into bank to open a current account ₹ 1,00,000.
	5	Purchased a computer and paid by cheque ₹ 2,50,000.
	6	Bought goods on credit from Ritika ₹ 60,000.
	8	Cash sales ₹ 30,000.
	9	Sold goods to Karishma on credit ₹ 25,000.
	12	Cash paid to Mansi on account ₹ 30,000.
	14	Goods returned to Ritika ₹ 2,000.
	15	Stationery purchased for cash 3,000.
	16	Paid wages ₹ 1,000.
	18	Goods returned by Karishma ₹ 2,000.
	20	Cheque given to Ritika ₹28,000.
	22	Cash received from Karishma on account 15,000
	25	Insurance premium paid by cheque ₹ 4,000.
	26	Cheque received from Karishma ₹ 8,000.
	28	Rent paid by cheque ₹ 3,000.
	29	Purchased goods on credit from Meena Traders ₹ 20,000.
	30	Cash sales ₹ 14,000.
6.		Solve some question of Purchase book, sales book and purchase return and sales return. (Minimum 4 – 4 questions from each book.)
7.		What do you understand by Cash Book? Elaborate five – five Advantages and disadvantages.
8.		What is Trial Balance? How to prepare trial balance? Elaborate rules of Trial Balance.
9.		Prepare trial balance above question number 3, 4 and 5
10	January 2008	Write up the following transactions in the journal of Ashok Furniture's and post them to the ledger. Also prepare a trial balance.
	1	Started business with cash ₹ 4,00,000
	2	Deposited into bank ₹ 3,50,000
	10	Purchased machinery ₹ 1,00,000 (issued a cheque for the same)
	15	Paid installation charges for machinery ₹ 2,000
	20	Purchased timber from Singh & Co. at the list price of ₹ 20,000. He allows 10% trade discount.
	25	Timber costing ₹ 5,000 was used for furnishing the office.
	31	Sold furniture to Rakesh on the list price of ₹ 10,000 and allowed him 10% trade discount.

### FRENCH

#### Exercise1.

Décrivez un pays francophone de votre choix et présentez-le en donnant les détails suivants:

1. Se situer sur la carte du monde.
2. Habitants.
3. La nourriture.
4. Un plat avec la recette
5. Le drapeau.

#### Exercice2. (Page 89 a 100 de Setrite)

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