

**Army Public School Hisar**  
**Holidays Homework**  
**Class – X**

**English**

1. Read books online and write a review of the book you like the most. Make a creative book cover and put the review in it.
2. Read the poems of the book 'First Flight' and write the poetic devices used in the poems in your notebook.
3. Writing skills- Practice formal letter and analytical paragraphs.
4. Revise the syllabus covered so far.
5. Write an article in about 150 words on the topics mentioned in the following list:
  - a) Roll no. 1-8 – The Rise and Impact of COVID-19 in India
  - b) Roll no. 9-16- Need for Road Safety
  - c) Roll no. 17-24- Excessive Use of Mobile
  - d) Roll no. 25 onwards- Cricket- A Religion in Our Country

**Hindi**

1. सम्पूर्ण पाठ्यक्रम याद कीजिए ।
2. कबीर के दोहे कंठस्थ कीजिए ।
3. अपने आस-पास रहने वाले बुजुर्गों का साक्षात्कार लेकर अपनी उत्तर-पुस्तिका में लिखिए ।
4. राजस्थान से सम्बन्धित एक परियोजना कार्य तैयार कीजिए, जिसमें मीरा का जन्म, स्थान, भाषा, बोली, पहनावा, खान-पान, लोकगीत, किले, लोकनृत्य आदि का उल्लेख हो ।
5. अपनी मनपसन्द कोई एक पुस्तक पढ़कर समीक्षा लिखिए ।
6. लघु कथा लिखिए –
  1. दो मित्र नौका पर सवार, तूफान में नौका फँसना
  - .2 एकता
  - .3 'बड़े भाईसाहब' पाठ के आधार पर एक लघुकथा ।
  - .4 लॉकडाउन में अपने अनुभवों को आधार बनाकर लघुकथा ।
  - .5 अपने जीवन की किसी रोचक घटना पर एक लघुकथा लिखिए \

7. विद्यालय पत्रिका के लिए कोई एक स्वरचित लेख लिखिए ।
8. नीचे लिखे अनुक्रमांक अनुसार विद्यार्थी वीडियो बनाए एनीमेशन के साथ विभिन्न कवियों पर आधारित परियोजना-कार्य तैयार करें :-

अनुक्रमांक - 1-10 (कबीर )  
 11-20 (अटल बिहारी वाजपेयी )  
 21-30 (सूर्यकान्त त्रिपाठी निराला )  
 31 से आगे (सुमित्रा नन्दन पंत)

## Math

1. Revise unit 2 and 3 with all examples and optional exercise of NCERT.
2. Do assignment of unit 2 and 3 in separate note book.

### Chapter2: Polynomials

1. Find the sum of zeroes of  $3x^2 - 7$ .
2. What is the degree of constant polynomial and zero polynomial?
3. What is the shape of graph of linear and quadratic polynomial?
4. How many polynomials can be possible whose zeroes are  $-1$  &  $-2$  ?
5. A quadratic polynomial can have atmost how many zeroes?
6. What is division algorithm for polynomials?
7. What is the general form of quadratic polynomial?
8. Find the zeros of polynomial  $P(x) = 4\sqrt{3}x^2 + 5x - 2\sqrt{3}$  and verify the relation between zeros and coefficients.
9. Find the zeros of polynomial  $f(x) = abx^2 + (b^2 - ac)x - bc$  and verify the relation between zeros and coefficients.
10. If  $\alpha$  and  $\beta$  are zeros of a polynomial  $2x^2 - 5x + 1$  then evaluate the followings :
 

(i) $\alpha^3 + \beta^3$	(ii) $\frac{\alpha}{\beta^2} + \frac{\beta}{\alpha^2}$	
(iii) $\alpha^4 + \beta^4$	(iv) $1/\alpha + 1/\beta$	(v) $\beta/\alpha + \alpha/\beta$
11. If  $\alpha$  and  $\beta$  are zeros of a polynomial  $kx^2 + 4x + 4$  such that  $\alpha^2 + \beta^2 = 24$ . Find the value of k.
12. If  $\alpha$  and  $\beta$  are zeros of a polynomial  $3x^2 - 4x + 2$ . Find a polynomial whose zeros are  $2\alpha + 1, 2\beta + 1$  .
13. If  $\alpha$  and  $\beta$  are zeros of a polynomial  $x^2 - x - 1$ . Find a polynomial whose zeros are  $2\alpha + 3\beta, 3\alpha + 2\beta$
14. If one zero of the polynomial  $ax^2 + 15x + 6$  is reciprocal of the other , then find the value of  $a$ . Also ,find the zeros.
15. If  $\sqrt{2}$  is a zero of the polynomial  $6x^3 + \sqrt{2}x^2 - 10x - 4\sqrt{2}$  then find the other two zeros of the polynomial.
16. Find the zeros of polynomial  $2x^3 - 15x^2 + 37x - 30$  if product of its two zeros is 5.
17. If  $-b, a$  and  $a + b$  are the zeros of polynomial  $x^3 - 12x^2 + 39x - 28$ . Find the zeros of polynomial and also verify the relation between zeros and coefficients.
18. Find the values of  $a$  and  $b$  so that  $x^4 + x^3 + 8x^2 + ax + b$  is divisible by  $x^2 + 1$ .

19. If the polynomial  $8x^4 + 14x^3 - 2x^2 + 8x - 12$  is divided by  $4x^2 + 3x - 2$ , the remainder comes out  $ax + b$ . find  $a$  and  $b$ .
20. Find  $k$  so that  $x^2 + 2x + k$  is a factor of  $2x^4 + x^3 - 14x^2 + 5x + 6$ . Also find all the zeros of polynomials.
21. If  $a, b, c$  are the zeros of polynomial  $x^3 - 2x^2 + qx - r$  such that  $a + b = 0$ . Show that  $2q = r$ .
22. If sum and product of zeros of a polynomial are  $\sqrt{2}$  and  $-\frac{3}{2}$  respectively. Find the polynomial as well as its zeros.
23. If  $a, a + b, a + 2b$  are the zeros of polynomial  $x^3 - 6x^2 + 3x + 10$  for some real numbers  $a$  and  $b$ . find  $a, b$  and zeros of given polynomial.
24. What polynomial should be added to the polynomial  $6x^4 + 8x^3 + 17x^2 + 21x + 7$  so that  $-1$  and  $-\frac{1}{3}$  becomes two of its zeros. Also find number of zeros of the given polynomial after adding the required polynomial.

### Answers

Q1	0
Q2	(0 and not define)
Q3	(straight and parabola)
Q4	(infinitely many)
Q5	(2)
Q6	( $p(x) = g(x) \times q(x) + r(x)$ )
Q7	( $ax^2 + bx + c, a \neq 0$ )
Q8	( $-2/\sqrt{3}, \sqrt{3}/4$ )
Q9	( $-b/a, c/b$ )
Q10	95/8, 95/2, 433/16, 5, 21/2
Q11	(-1, 2/3)
Q12	( $3x^2 - 14x + 19$ )
Q13	$x^2 - 5x + 5$
Q14	( $a=6$ and zeroes are -2 and -1/2)
Q15	( $-1/\sqrt{2}$ and $-4/3\sqrt{2}$ )
Q16	3, 2, 5/2
Q17	( $a=4, b=\mp 3$ , zeroes are -1, 4, 7)
Q18	( $a=1$ and $b=7$ )
Q19	( $a=15$ and $b=-14$ )
Q20	(1, -3, 2, -1/2)
Q21	.....
Q22	( $2x^2 - 2\sqrt{2}x - 3, -1/\sqrt{2}$ and $3/\sqrt{2}$ )
Q23	( $a = -1, 5$ and $b = 3, -3$ and zeroes are -1, 2 and 5)
Q24	-(x+2)

## ASSIGNMENT

### Chapter3: Pair of Linear Equations in 2 Variables

Solve the following system of equations: (Q.1(i) to (vi) )

Q1. (i)  $\frac{a^2}{x} - \frac{b^2}{y} = 0$

$$\frac{a^2b}{x} + \frac{b^2a}{y} = a + b$$

(iv)  $2(ax - by) + a + 4b = 0$

$$2(bx + ay) + b - 4a = 0$$

(ii)  $\frac{x+1}{y+1} = \frac{4}{5}$

$$\frac{x-5}{y-5} = \frac{1}{2}$$

(v)  $mx - ny = m^2 + n^2$

$$x + y = 2m$$

(iii)  $\frac{ax}{b} - \frac{by}{a} = a + b$

$$ax - by = 2ab$$

(vi)  $2^x + 3^y = 17$

$$2^{x+2} - 3^{y+1} = 5$$

Q2. At what point will the line  $x - y = 8$  intersect y-axis ?

Q3. Does the point (2,3) lie on the graph of  $3x - 2y = 5$ ?

Q4. Draw the graphs of lines  $x - y + 1 = 0$  and  $3x + 2y - 12 = 0$ . Also calculate the area bounded by these lines and X-axis.

Q5. Solve the lines  $3x + y - 11 = 0$  and  $x - y - 1 = 0$  graphically. Calculate the area bounded by these lines and Y-axis.

Q6. For what value of k equations  $x + (k + 1)y = 5$  and  $(k + 1)x + 9y = 8k - 1$  has infinitely many solutions.

Q7. Find the value of p and q for which system of equations has infinite number of solutions:

$$2x + 3y = 7 \text{ and } (p + q)x + (2p - q)y = 21$$

Q8. Determine the value of k so that the following linear equations have no solution:

$$(3k + 1)x + 3y - 2 = 0 \text{ and } (k^2 + 1)x + (k - 2)y - 5 = 0$$

Q9. Find the value of k for which the system has a unique solution:  $3kx + 2y = 7$  and  $y - x = 6$

Q10. Find the values of a and b for which the following system of equations has infinitely many solutions:

(i)  $(2a - 1)x - 3y = 5$

(ii)  $2x - (2a + 5)y = 5$

(iii)  $3x + 4y = 12$

$$3x + (b - 2)y = 3$$

$$(2b + 1)x - 9y = 15$$

$$(a + b)x + 2(a - b)y = 5a - 1$$

Q11. A two digit number is 3 more than 4 times the sum of its digits. If 18 is added to the number, the digits are reversed. Find the number.

Q12. A two digit number is 4 times the sum of its digits and twice the product of the digits. Find the number.

Q13. The sum of digits of a two digit number is 15. The number obtained by reversing the digits of given number exceeds the given number by 9. Find the given number.

Q14. The sum of a two digit number and the number formed by interchanging its digits is 110. If 10 is subtracted from original number, the new number is 4 more than 5 times the sum of the digits in the original number. Find the original number.

Q15. The sum of the numerator and denominator of a fraction is 3 less than twice the denominator. If the numerator and denominator are decreased by 1, the numerator becomes half the denominator. Determine the fraction.

Q16. Points A and B are 90km apart from each other on a highway. A car starts from A and another from B at the same time. If they go in same direction they meet in 9 hours and if they go in opposite directions they meet in  $\frac{9}{7}$  hours. Find their speeds.

Q17. X takes 3 hours more than Y to walk 30km. But, if X doubles his speed, he is ahead of Y by  $1\frac{1}{2}$  hours. Find their speed of walking.

Q18. Students of a class are made to stand in rows. If one student is extra in a row, there would be 2 rows less. If one student is less in a row there would be 3 rows more. Find the number of students in the class.

Q19. The age of father is twice the sum of the ages of his two children. After 20yrs, his age will be equal to the sum of the ages of his children. Find the age of the father.

Q20. A person, rowing at the rate of 5kmph in still water, takes thrice as much time in going 40km upstream as in going 40km downstream. Find the speed of the stream.

Q21. A two-digit number is obtained by either multiplying the sum of the digits by 8 and then subtracting 5 or by multiplying the difference of the digits by 16 and then adding 3. Find the number.

Q22. A railway half ticket cost half the full fare but the reservation charges are the same on a half ticket as on a full ticket. One reserved first class ticket from the stations A to B costs Rs2530. Also, one reserved first class ticket and one reserved first class half ticket from stations A to B costs Rs 3810. Find the full first class fare from stations A to B and also the reservation charges for a ticket .

**Answers**

Q1 (i)  $x = a^2, y = b^2$

(ii)  $x=7, y=9$

(iii)  $x=b, y = -a$

(iv)  $x=-1/2, y = 2$

(v)  $x= m+n, y= m - n$

(vi)  $x=3, y=2$

Q2	0, -8
Q3	No
Q4	7.5
Q5	18
Q6	K=2
Q7	P=5, q=1
Q8	K=-1
Q9	$k \neq -2/3$
Q10	(i) $a=3, b=1/5$ (ii) $a=-1, b=5/2$ (iii) $a=5, b=1$
Q11	35
Q12	36
Q13	78
Q14	64
Q15	4/7
Q16	40,30
Q17	10/3,5
Q18	$5*12=60$
Q19	40
Q20	2.5kmph
Q21	83
Q22	2500,30

## Science

A. Make a PowerPoint presentation on the following topics -

➤ 1	➤ CONCEPT OF CORROSION, CONDITIONS REQUIRE AND METHODS TO PREVENT IT	➤ CHEMISTRY
➤ 2.	➤ NUTRITION IN HUMAN BEINGS	➤ BIOLOGY
➤ 3.	➤ RAY DIAGRAMS BY SPHERICAL MIRRORS	➤ PHYSICS

➤ It should be of MINIMUM 15-16 pages including Title, Index, Introduction and References.

B. Write and learn all the questions given below :

SUBJECT : BIOLOGY

TOPIC: LIFE PROCESSES

- Q1.** Why do herbivores have longer, small intestine than carnivores?
- Q2.** Write the balanced chemical equation for the process of photosynthesis. How photosynthesis occurs in desert plants?
- Q3.** In single celled organisms diffusion is sufficient to meet all their requirements of food, exchange of gases or removal of wastes but it is not in case of multicellular organisms. Explain the reason for this difference.
- Q4.** Draw a neat labeled diagram of human alimentary canal.
- Q5.** Explain the process of nutrition in Amoeba.
- Q6.** How do guard cells regulate the opening and closing of the stomata? **Q7.** Explain exchange of gases in humans.
- Q8.** State the role of the following in human digestive system:
- (a) Digestive enzymes
  - (b) Hydrochloric acid (HCl)
  - (c) Villi
- Q9.** Draw a diagram of human respiratory system and label the following:
- (a) Part where air is filtered by fine hairs and mucus
  - (b) Part which terminates in balloon like structures
  - (c) Part which separates chest cavity from abdominal cavity
  - (d) Part where exchange of gases takes place.

**Q10.** Draw a neat labeled diagram of opened and closed stomata.

**SUBJECT : PHYSICS**

**TOPIC : LIGHT**

Q.1. Why a ray of light passing through the centre of curvature of a concave mirror retrace its path after reflection?

Q.2. One wants to see an enlarged image of an object in a mirror. What kind of mirror should one use and where should the object be placed?

Q.3. Which property of a concave mirror can be used to determine its focal length?

Q.4. What kind of mirror is used in vehicles to see the traffic following it?

Q.5. What type of mirror is formed when a mercury drop falls on the earth?

Q.6. Distinguish between real and virtual image.

Q.7. Draw ray diagrams to show the formation of images when the object is placed in front of a concave mirror.

(i) Between its pole and focus point.

(ii) Between its centre of curvature and focus point.

Q.8. How will you distinguish between a plane mirror, a concave mirror and a convex mirror without touching them?

Q.9. Show that image distance is same as object distance when an extended object is placed in front of the plane mirror.

Q.10. A short linear object of 2 cm. lies on the axis of a concave mirror of 15 cm. focal length at a distance of 30 cm. from the mirror. What is the size of the image?

Q.11. The image behind a convex mirror ( $R = 68$  cm) is located at 22 cm. from the mirror. Where is the object located? What is the magnification produced? Write the nature of image formed.

Q.12. Find the position, nature and size of the image of an object 4 cm high placed at a distance 10 cm from a concave mirror of focal length 20 cm.

Q.13. An object is placed at 10 cm from focus farther away from the mirror. If the image formed is half the size of the object and real in nature, find the focal length of the mirror.

Q.14. An image double the size of the object is formed on placing an object in front of a mirror of focal length 20 cm. Find the position (s) of the object.

## CHEMISTRY

### TOPIC –CHEMICAL REACTIONS AND EQUATIONS



(i) Name the species undergoing oxidation.

(ii) Name the species undergoing reduction.

Q.2 Chloride of a metal (X) (which is used to make coins) when exposed to sunlight, turns grey from white. Name the type of reaction and identify X.

Q.3 Sodium bromide is added to an aqueous solution precipitate of „B“ is obtained which photosensitive and decomposes to its constituents, accompanied by the evolution of a reddish brown gas. Write down the balanced equation and identify A and B.

Q.4 Metal „A“ is found in the earth c reddish brown flaky substance. When a cont store a blue coloured solution changes to of pale green „B“, and the reddish brown metal „C“ is formed. Identif the reaction. Also in name the type of reaction

### Value Based Question

Q.1. There are different types of chemical reactions occurring around us or being carried out for the benefit of mankind e.g. combustion reaction, decomposition reaction, redox and photochemical reaction.

Now, answer the following questions:

(i) Combustion of coke is a combination reaction.  $\text{CO}_2$  is not a pollutant. Then why is combustion of coke harmful?

(ii) What values have been added to our lives by electroplating? Give an example.

(iii) How photochemical reactions have played an important role in photography?

Q.2. We have often seen that oily food if not used within a limited time gets stale and gives bad taste, bad smell and becomes unfit for consumption. This is due to oxidation of oils and fats present in the food.

Now, answer the following questions:

(i) On marriage or other celebrations, a lot of food goes waste. What method do you suggest to prevent this wastage?

(ii) Often preservatives are added to certain food stuff so that they can stay consumable for a longer time, but these preservatives are chemicals which may be harmful. What alternative do you suggest?

(iii) What method of preservation of food items should be followed at home?

## **Social Science**

\_Prepare a detailed project on any one of the following topics.

### **Project 1:- Consumer Rights**

- Different types of consumers rights that you have as a consumer.
- COPRA
- Role of courts in implementation of consumer rights.
- How you can spread consumer awareness.

**Case study Project 2:- Social Issues** (Students may select any one topic related with social issues. Some suggested topics are given below)

- Gender issue

- Caste issue
- Linguistic diversity
- Economic disparities

**Project 3:- Sustainable Development**

- Meaning of sustainable development
- Issue of sustainable development
- Importance of sustainable development
- Meetings/reports/summit related to sustainable development
- Current status of development

Revise all the chapters done in class.

**Art & Craft**

Activities

1. Still life
2. Nature study
3. Bird study
4. Landscape
5. Poster on mothers day
- 6 poster on prevention of covid
- 7 Madhubani art

If you don't have drawing book you can make it on your drawing file . Book page pdf will sent in class group.

# IT

## (For AI)

1. Read and learn about the basics of AI.
2. Do the following python programs:-
  - a. WAP to swap the values of two variables.
  - b. WAP to check that a year is leap or not.
  - c. WAP to print the following series:- 2,4,8,16,.....N
  - d. WAP to print the sum of following series:- 10,9,8.....3,2,1
  - e. WAP to input a number and check that number is prime or not.
  - f. WAP to print the reverse of a number.
  - g. WAP to input a number and print its all factors.

## (For IT)

### Prepare an assignment in MS Word:

Page 1) Create and design a sample Student Loan Application form using different options like table, shapes, font style, size etc. available in MS Word.

**STUDENT LOAN APPLICATION FORM**

Family Name:	Student Number: c
First Name:	
Photo Identification (Passport or Drivers Licence)	
No:	Expiry Date:
Copied	<input type="checkbox"/>
Second Identification document:	Copied
	<input type="checkbox"/>
Permanent Home Address: _____	
Postcode:	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Temporary Living Address (if different): _____	
Postcode:	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
Preferred Phone Number :	
Are you an: Australian Citizen <input type="checkbox"/> Permanent Resident <input type="checkbox"/> International Student <input type="checkbox"/> Other _____	
Study Details: Undergraduate <input type="checkbox"/> Post Graduate <input type="checkbox"/>	
Faculty _____ Program _____	
Are you completing an industry placement/clinical prac/major project this year? Yes <input type="checkbox"/> No <input type="checkbox"/>	
If yes, details: _____	
Amount of Loan Requested: \$	

Page 2) Create business/ Visiting cards using shapes, text and colors and use page border option on the page.

Page 3) Use Smart Art to show Oxygen Cycle in environment and format the smart Art.

Page 4) Create a sample index page from any of your book i.e. IT, Science, S.St., Math's etc.

Page 5) Take a double column book or newspaper and design or create similar paragraph style in the word document.

Page 6) Insert template or download the new template in Microsoft Word from Internet and edit that template with your content.

Use header and footer on every page that contains page number, date, title etc.