

**ARMY PUBLIC SCHOOL JAMMU CANTT**  
**AUTUMN BREAK HOLIDAYS HOMEWORK 2018-19**

**CLASS-X**

**ENGLISH**

- Q1. You are Chitra/Chitranjan, 55 Brindavan Lane, Bengaluru. Write a letter to the Editor of a local newspaper expressing concern at the misbehavior of the autorickshaw drivers drivers in the city.
- Q2. Write a letter to the Editor of your favourite magazine, congratulating them on their 6<sup>th</sup> anniversary and commending them for their good work. You are Shistri/Shayan of 66, Chowrungee Lane, Kolkata.
- Q3. You are Raghunath/Rama, the student editor of your school magazine. Using the him given below write a short story titled 'Great Expectation' in about 150-200 words.
- Q4. You are Kamlesh/Kamla, the student editor of your school magazine. Using the him given below, write a short titled 'Horatius'.
- Q5. You are Ramesh/Reshma, the student editor of your magazine 'Pankaj'. Using information given below and your own ideas, write a short story titled 'The Devil and Old Women'.
- Q6. (i) Consequential/are believed/morning walks/important and/to be very
- (ii) Walking up early/ and robust life/you have to/the pangs of/for a morning walk/ hale, hearty/ which will help/abide by/you lead a
- (iii) Significant of all/morning walks/physical exertions/are validated/most /as the limitations/or depriving yourself of
- Q7. (i) is not about/the foods you love/staying unrealistically thin/healthy eating/strict dietary limitations/or depriving yourself of
- (ii) Rather/stabilizing your mood/having more energy/and/ it is about/improving your outlook/feeling great

- (iii) eating right/health problems/can help you/we all know/that/and  
avoid/ a healthy weight/maintain

- Q8. (i) contain important/plant chemicals/vitamins/fruits and  
vegetables/minerals/and  
(ii) many ways/many varieties/cook and serve/there are/available  
and/to get/fruits and vegetable/the most

		<b>Error</b>	<b>Correction</b>
9. The Louvre is a world's largest	e.g	a	the
And old museum. It is located	(a)	.....	.....
along the banks of the Seine River by Paris,	(b)	.....	.....
France. Also called the Grand Louvre, it is the			
world's most visiting museum.	(c)	.....	.....
It attracted tourists from all over the world	(d)	.....	.....

		<b>Before</b>	<b>Word</b>	<b>After</b>
10. (a) Wandering along the streets	.....	.....	.....	.....
Mumbai				
b) my sons and I stopped the	.....	.....	.....	.....
eating Joints. Wherever we				
happen to be, we				
(c) make sure we taste the food of	.....	.....	.....	.....
(d) the restaurant. In Mumbai we	.....	.....	.....	.....
(e) tasted the regional food was	.....	.....	.....	.....
(f) sumptuous and tickled taste	.....	.....	.....	.....
buds.				

## HINDI

1 निम्नलिखित प्रश्नों के उत्तर 50–60 शब्दों में लिखें :

- (क) “मुझे प्रकृति की ओर , बढ़ो मनुष्यता की ओर “ प्रस्तुत पाठ ‘अब कहाँ दूसरों के दुख से दुखी होने वाले’ के आधार पर इस कथन की सार्थकता सिद्ध कीजिए।
- (ख) “हमें सत्य में जीना चाहिए , सत्य केवल वर्तमान है।” ‘पतञ्जर में टूटी पत्तियाँ ’ के इस कथन को स्पष्ट करते हुए लिखिए कि लेखक ने ऐसा क्यों कहा है ?
- (ग) किसी प्रसिद्ध समाचार पत्र के संपादक के नाम कोई दो पत्र लिखिए।
- (घ) प्रधानाचार्य की ओर से एक सूचना लिखिए कि विद्यालय में आ जाने के बाद किसी विद्यार्थी को पूरी छुट्टी होने तक विद्यालय से बाहर नहीं जाने दिया जाएगा। इस कदम के पीछे निहित कारण बताइए।

## MATHS

### CHAPTER-01

Q.1 what is Lemma?

Q.2 Show that the square of any positive integer is of the form  $3m$  or  $3m+1$  for some integer  $m$ .

Q.3 Prove that the product of three consecutive positive integer is divisible by 6.

Q.4 Find the HCF of 81 and 237 and express it as a linear combination of 81 and 237.

Q.5 Find the largest number that divides 2053 and 967 and leaves a remainder of 5 and 7 respectively.

Q.6 Use Euclid’s lemma find HCF of 592 and 252.

Q.7 Check  $5^n$  can end with the digit 0 for any natural number  $n$ .

Q.8 Prove that  $3+2\sqrt{5}$  is irrational.

Q.9 Prove that  $\sqrt{p}$  is irrational.

Q.10 Find which of the following numbers are terminating and non-terminating. i)  $29/343$  ii)  $3/8$  iii)  $77/210$  iv)  $35/50$

Q.11 If  $d$  is the H.C.F of 45 and 27, find  $x$  and  $y$  satisfying  $d=27x+45y$

Q.12 Prove that the square of any positive integer is of the form  $5m, 5m+1, 5m+4$  for some integer  $m$ .

Q.13 Show that  $n^2-n$  is divisible by 2 for every positive integer  $n$ .

Q.14 Find the largest number which divides 853 and 385 leaving remainder 7 in each case.

Q.15 Prove that  $3\sqrt{7}$  is irrational.

Q.16 If  $\sqrt{ab}$  is an irrational number, prove that  $\sqrt{a} + \sqrt{b}$  is irrational.

Q.17 What is the smallest number which when divided by 144, 180 and 192 leaves remainder 3 in each case.

Q.18 Check whether  $6^n$  can end with digit 0 for any natural number  $n$ .

Q.19 Find the least number that is divisible by all numbers between 1 and 10 (both inclusive).

Q.20 Show that  $\sqrt{571}$  is a prime number

Q.21 If  $d$  is the HCF of 30, 72, find the value of  $x$  &  $y$  satisfying  $d = 30x + 72y$ .

Q.22 Show that the product of 3 consecutive positive integers is divisible by 6.

Q.23 Show that for odd positive integer to be a perfect square, it should be of the form  $8k + 1$ .

Q.24 Find the greatest number of 6 digits exactly divisible by 24, 15 and 36.

Q.25 Prove that  $(\sqrt{n} + 1 + \sqrt{n} - 1)$  is irrational, for every  $n \in \mathbb{N}$

### CHAPTER-02

Q.1 Define a polynomial with real coefficients.

Q.3 If 1 is zero of the polynomial  $p(x) = ax^2 - 3(a-1)x - 1$ , then find the value of a.

Q.4 If the sum of the squares of zeros of the quadratic polynomial  $f(x) = x^2 - 8x + k$  is 40, find the value of k.

Q.5 If  $\alpha$  and  $\beta$  are the zeros of the quadratic polynomial  $f(x) = 2x^2 - 5x + 7$ , find a polynomial whose zeros are  $2\alpha + 3\beta$  and  $3\alpha + 2\beta$ .

Q.6 If  $\alpha$  and  $\beta$  are the zeros of quadratic polynomial  $p(s) = 3s^2 - 6s + 4$ , find the values of  $\frac{\alpha}{\beta} + \frac{\beta}{\alpha} + 2\left(\frac{1}{\alpha} + \frac{1}{\beta}\right) + 3\alpha\beta$ .

Q.7 If two of the zeros of the polynomial  $f(x) = x^3 - 4x^2 - 3x + 12$  are  $\sqrt{3}$  and  $-\sqrt{3}$ , then find its third zero.

Q.8 State division algorithm.

Q.9 Find the values of a and b so that  $x^4 + x^3 + 8x^2 + ax + b$  is divisible by  $x^2 + 1$ .

Q.10 Find all other zeros of the polynomial  $x^4 + x^3 - 34x^2 - 4x + 120$ , if two of its zeros are 2 and -2.

Q.11 Find the zeros of the polynomial  $2s^2 - (1 + 2\sqrt{2})s + \sqrt{2}$  and verify the relations between the zeros and coefficients of the polynomial.

+3/2 respectively. Also find its zeros.

Q.13 If 1 is a zero of the polynomial  $P(x) = ax^2 - 3(a-1)x - 1$ , then find the value of a.

Q.14 If  $\alpha$  and  $\beta$  are the zeros of the polynomial  $x^2 - 5x + k$  such that  $\alpha - \beta = 1$ , find value of k.

Q.15 Find the value of K such that  $3x^2 + 2kx + x - k - 5$  has the sum of the zeros as half of their product.

Q.16 If the polynomial  $x^4 + x^3 + 8x^2 + ax + b$  is divisible by  $(x^2 + 1)$  find a and b.

Q.17 Verify that 3, -1, -1/3 are the zeros of the cubic polynomial  $P(x) = 3x^3 - 5x^2 - 11x - 3$

and then verify the relationship between zeroes and the coefficients.

Q.18 If two zeros of the polynomial  $x^4 - 6x^3 - 26x^2 + 138x - 35$  are  $2 + \sqrt{3}$  and  $2 - \sqrt{3}$ . Find other zeroes.

Q.19 Find a quadratic polynomial whose zeroes are  $2 + \sqrt{3}$  and  $2 - \sqrt{3}$

Q.20 One zero of the quadratic polynomial  $2x^2 - 8x - m$  is 5/2. Find the other the other zero and the value of m.

### CHAPTER-03

Q.1 Show graphically that the system of equations:  $3x - y = 2$ ,  $9x - 3y = 6$

Q.2 Use a single graph paper and draw the graph of the following equations:  $2y - x = 8$ ,  $5y - x = 14$ ,  $y - 2x = 1$

Q.3 Solve the system of equations by using the method of substitution

$$\frac{2x}{a} + \frac{y}{b} = 2, \quad \frac{x}{a} - \frac{y}{b} = 4$$

$$\text{Q.4 Solve } \frac{1}{2(2x+3y)} + \frac{12}{7(3x-2y)} = \frac{1}{2}, \quad \frac{7}{2x+3y} + \frac{4}{3x-2y} = 2$$

$$\text{Q.5 Solve } ax + y = a + b, \quad ax - by = a^2 - b^2$$

Q.6 Find the values of p and q for which the following system of equations has infinite number of solutions:  $2x + 3y = 7$ ,  $(p+q)x + (2p-q)y = 21$

Q.7 The sum of the digits of a two digit number is 8 and the difference between the number and that formed by reversing the digits is 18. Find the number.

Q.8 The denominator of a fraction is 4 more than twice the numerator. When both the numerator and denominator are decreased by 6, then the denominator becomes 12 times the numerator. Determine the fraction.

Q.9 Two years ago, a father was five times as old as his son. Two years later, his age will be 8 more than three times the age of the son. Find the present ages of father and son.

Q.10 A boat goes 12 km upstream and 40 km downstream in 8 hours. It can go 16 km upstream and 32 km downstream in the same time. Find the speed of the boat in still water and the speed of the stream.

Q.11 Solve the following system of linear equations graphically:  $3x+y-11=0$ ,  $x-y+1=0$  Shade the region bounded by these lines and y-axis. Also, find the area of the region bounded by the lines and y-axis.

Q.12 Find the values of a and b for which the following system of linear equations has infinite number of solutions,  $2x+3y=7$ ,  $a(x+y)-b(x-y)=(3a+b-2)$

Q.13 Write a pair of linear equations which has unique solution  $x=-1$  and  $y=3$

Q.14 solve the pair of linear equations:

$$\frac{1}{2(2x+3y)} + \frac{12}{7(3x-2y)} = \frac{1}{2}, \quad \frac{7}{2x+3y} + \frac{4}{3x-2y} = 2$$

Q.15 Solve for x and y:  $(a-b)x + (a+b)y = a^2 - 2ab + b^2$ ,  $(a+b)(x+y) = a^2 + b^2$

Q.16 The area of a rectangle gets reduced by 8 square meter, when its length is reduced by 5 m and its breadth is increased by 3 m. If we increase the length by 3 m and breadth by 2 m, the area is increased by 74 square meter. Find the length and breadth of the rectangle.

Q.17 A train covered a certain distance at a uniform speed. If the train would have been 10 km/h faster, it would have taken 2 hours less than the scheduled time. And, if the train were slower by 10 km/h, it would have taken 3 hours than the scheduled time. Find the distance covered by the train.

Q.18 solve :  $152x-378y=-74$ ,  $-378x+152y=-604$

Q.19 Solve the following system of linear equations graphically

$$3x+y-11=0, \quad x-y-1=0$$

a) shade the region bounded by these lines and y-axis.

b) Find area of the region bounded by these lines and the y-axis.

c) Determine vertices of the triangle formed by the lines representing the above equations and the y-axis.

Q.20 Some people collected money to be donated in some orphanages. A part of the donation is fixed and remaining depends on the number of children in orphanage. If they donated ₹9500 in the orphanage having 50 children and ₹13250 with 75 children, find the fixed part of donation and the amount donated for each child. Do you think these people are working for a good cause. How?

#### CHAPTER-4

1. In a three digit number, middle digit is 4. Product of the other two digits is 18. If we subtract 297 from the number, the digits get reversed. Find the number.
2. In a two digit number, product of the digits is 12. Difference of the digits is 1. Find the number.
3. To cover a distance of 120 kms downstream and 80 kms upstream a boat takes 2 hours. If the speed of the boat in still water is 100 kms/hr, find the speed of the stream.

4. To cover a distance of 150 kms downstream and 130 kms upstream a boat takes two hours. If the speed of the stream is 20 kms/hr, find the speed of the boat in still water.
5. Find the value of k if the roots of  $kx^2 + 3x + 7 = 0$  are real and equal.
6. Find the value(s) of k if the roots of  $kx^2 + 4x + 8 = 0$  are real.
7. Solve using quadratic formula: (i)  $x^2 - 2x - 3 = 0$     (ii)  $2x^2 + 4x - 5 = 0$   
(iii)  $3x^2 + 4x - 7 = 0$     (iv)  $x^2 - 4x + 1 = 0$     (v)  $4x^2 + 5x - 1 = 0$ .
8. Solve using factorization method: (i)  $x^2 - 7x + 12 = 0$     (ii)  $x^2 - 4x - 12 = 0$     (iii)  $2x^2 - 15x + 7 = 0$     (iv)  $3x^2 - 11x + 6 = 0$     (v)  $4x^2 - 25x + 6 = 0$ .
9. Solve by the method of completion of squares: (i)  $x^2 - 2x + 7 = 0$     (ii)  $x^2 - 3x + 2 = 0$   
(iii)  $x^2 + 5x - 3 = 0$     (iv)  $4x^2 - 4x - 7 = 0$     (v)  $x^2 - 4x + 3 = 0$
10. Solve for x :  $1/(x+2) + 1/(x-1) = 5/4$
11. If  $x=2$  ,and  $x=3$  are the roots of the equation  $3x^2 - 2mx + 2n = 0$ , find the value of m and n.
12. Solve :  $\frac{1}{a-b+x} = \frac{1}{x} + \frac{1}{a} - \frac{1}{b}$
13. Solve for x:  $a^2b^2x^2 - (4b^4 - 3a^4)x - 12a^2b^2 = 0$
14. Find the value of K for which roots of the equation  $x^2 - 8kx + 2k = 0$  are real and equal.
15. If the roots of quadratic equation  $(b-c)x^2 + (c-a)x + (a-b) = 0$  are equal then prove that  $2b = a + c$
16. Find a natural number whose square diminished by 84 is equal to thrice of 8 more than given number.
17. If the list price of a toy is reduced by Rs 2, a person can buy 2 toys more for Rs 360. Find the original price of the toy.
18. If the roots of  $ax^2 + bx + c = 0$  are equal in magnitude but opposite in sign then prove that  $b = 0$
19. A dealer sells a toy for Rs.24 and gains as much percent as the cost price of the toy. Find the cost price of the toy.
20. A fox and an eagle lived at the top of a cliff of height 6m, whose base was at a distance of 10m from a point A on the ground. The fox descends the cliff and went straight to the point A. The eagle flew vertically up to a height  $x$  metres and then flew in a straight line to a point A, the distance traveled by each being the same. Find the value of  $x$ .
21. Solve  $x = \sqrt{6 + \sqrt{6 + \sqrt{6}}} \dots\dots\dots$
22. The hypotenuse of a right triangle is 20m. If the difference between the length of the other sides is 4m. Find the sides.

23. If the roots of the equation  $(a-b)x^2 + (b-c)x + (c-a) = 0$  are equal. Prove that  $2a = b + c$ .

### CHAPTER-5

1. Find the 4<sup>th</sup> and 9<sup>th</sup> terms of the sequence whose nth term is given by  $a_n = 7n - 9$
2. Find a, b and c such that the following numbers are in AP: a, 7, b, 23, c.
3. Find the 11<sup>th</sup> term from the last term of the A.P: 10, 7, 4, ....., -62.
4. Which term of A.P 134, 129, 124, ..... is its first negative term.
5. Find the ratio of 10<sup>th</sup> term from beginning and 20<sup>th</sup> term from the end of the AP: 3, 8, 13, ..... 253.
6. If the p<sup>th</sup>, q<sup>th</sup> and r<sup>th</sup> term of a AP be x, y and z respectively. Show that :  
 $x(q-r) + y(r-p) + z(p-q) = 0$
7. Find the middle term of the sequence formed by all three digit numbers which leave a remainder 3, when divided by 4. Also, find the sum of all numbers on both sides of the middle terms separately.
8. The sum of the first n terms of an A.P is  $4n^2 + 2n$ . Find the n<sup>th</sup> term of this A.P
9. If a, b, c are in A.P then show that  $\frac{1}{bc}, \frac{1}{ca}, \frac{1}{ab}$  are also in AP.
10. Divide 48 into four parts which are in AP such that the products of extremes to the product of means is 7:15.
11. Solve,  $1 + 6 + 11 + 16 + \dots + x = 148$
12. In an AP, sum of first ten terms is -150 and the sum of its next ten terms is -550. Find the AP.
13. The sum of three numbers in AP is 12 and the sum of their cubes is 288. Find the numbers.
14. If the m<sup>th</sup> term of an AP is  $\frac{1}{n}$  and n<sup>th</sup> term is  $\frac{1}{m}$ , show that the sum of mn term is  $\frac{1}{2}(mn+1)$ .
15. If the sum of m terms of an AP is the same as the same as the sum of its n terms, show that sum of its (m+n) term is zero.
16. The sum of n, 2n and 3n terms of an AP are  $S_1, S_2$  and  $S_3$  respectively. Prove that  $S_3 = 3(S_2 - S_1)$
17. The ratio of the sums of m and n terms of an AP is  $m^2 : n^2$ . Show that the ratio of m<sup>th</sup> and n<sup>th</sup> term is  $(2m-1) : (2n-1)$
18. The sum of three numbers in AP is 12 and the sum of their cubes is 288. Find the numbers.

### CHAPTER—6

1. ABC is a right-angled triangle, right-angled at A. A circle is inscribed in it. The lengths of the two sides containing the right angle are 6cm and 8 cm. Find the radius of the in circle.
2. ABC is a triangle. PQ is the line segment intersecting AB in P and AC in Q such that PQ parallel to BC and divides triangle ABC into two parts equal in area. Find BP: AB.
3. P and Q are the mid points on the sides CA and CB respectively of triangle ABC right angled at C. Prove that  $4(AQ^2 + BP^2) = 5AB^2$
4. Prove that three times the sum of the squares of the sides of a triangle is equal to four times the sum of the squares of the medians of the triangle

5. Prove that in any triangle the sum of the squares of any two sides is equal to twice the square of half of the third side together with twice the square of the median, which bisects the third side.
6. An aeroplane leaves an airport and flies due north at a speed of 1000 km/h. At the same time, another plane leaves the same airport and flies due west at a speed of 1200 km/h. How far apart will be the two planes after  $1\frac{1}{2}$  hours.
7. The diagonals of a quadrilateral PQRS intersect each other at point O such that  $\frac{OP}{OR} = \frac{OQ}{OS}$ . Show that PQRS is a trapezium.
8. Prove that in a right triangle, the square of the hypotenuse is equal to the sum of the square of the other two sides. Using above theorem solve the following:  
A ladder 24cm long reaches a window of a house 12 m above the ground. If the distance of the foot of the ladder from the house.
9. State and prove BPT.
10. State and prove PGT.
11. State and prove Area theorem.
12. State and prove converse of PGT and BPT.

#### CHAPTER--7

1. Find the value of p when the distance between the points A(3,p) and B(4,1) is  $\sqrt{10}$ .
2. Find a relation between x and y such that the point (x,y) is equidistant from the points (7,1) and (3,5).
3. Prove that the points (3,0) , (6,4) and (-1,3) are vertices of a right angled isosceles triangle.
4. Find the centre of the circle passing through (6,-6) , (3,7) and (3,3). Also find the radius.
5. If (-4,3) and (4,3) are two vertices of an equilateral triangle. Find the coordinates of the third vertex, given that the origin lies in the interior of the triangle.
6. Find the ratio in which the point P(m,6) divides the join of A(-4,3) and B(2,8). Also, find the value of m.
7. If A(4,-8) , B(3,6) and C(5,-4) are the vertices of a triangle ABC. D is the midpoint of BC and P is a point on AD joined such that AP:PD= 2:1, find the coordinate of P.
8. If the area of a  $\Delta ABC$  formed by A(x,y) , B(1,2) and C(2,1) is 6 sq. units, then prove that  $x+y=15$
9. If the points (-2,1), (a,b) and (-4,1) are collinear and  $a-b=1$ , then find values of a and b.
10. Determine the ratio in which the line  $2x+y-4=0$  divides the line segment joining the points A(2,-2) and B(3,7).

#### CHAPTER-8

1. If  $\sec A = \sqrt{10}$ , find other five trigonometric function.
2. If  $\sin \theta = \frac{a}{b}$ , find  $(\sec \theta + \tan \theta)$  in terms of a and b.
3. If  $x \cos \theta - y \sin \theta = a$ ,  $x \sin \theta + y \cos \theta = b$ , prove that  $x^2 + y^2 = a^2 + b^2$



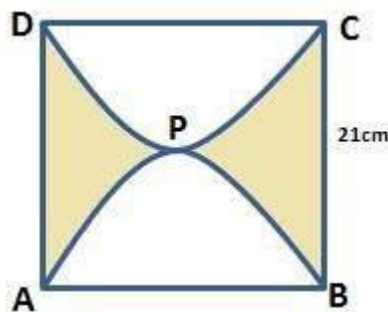
4. Prove that  $\sec^2\theta + \operatorname{cosec}^2\theta$  can never be less than 2.
5. If  $\sin \phi = \frac{1}{2}$ , show that  $3\cos\phi - 4\cos^3\phi = 0$
6. If  $7\sin^2\phi + 3\cos^2\phi = 4$ , show that  $\tan \phi = \frac{1}{\sqrt{3}}$
7.  $\tan A + \sin A = m$  and  $\tan A - \sin A = n$ , show that  $m^2 - n^2 = 4\sqrt{mn}$
8. If  $\sec A = x + \frac{1}{4x}$ , prove that  $\sec A + \tan A = 2x$  or  $\frac{1}{2x}$ .
9. If A, B are acute angles and  $\sin A = \cos B$ , then find the value of A+B.
10. Evaluate  
 $\sin(50^\circ + x) - \cos(40^\circ - x) + \tan 1^\circ \tan 10^\circ \tan 20^\circ \tan 70^\circ \tan 80^\circ \tan 89^\circ + \sec(90^\circ - x)$   
 $\operatorname{cosec} x - \tan(90^\circ - x) \cot x - \operatorname{cosec}^2 45^\circ$ .
11. If  $\cot A = \frac{4}{3}$  check  $1 - \tan^2 A = \frac{\cot^2 A - \sin^2 A}{1 + \tan^2 A}$
12.  $\sin(A - B) = \frac{1}{2}$ ,  $\cos(A + B) = \frac{1}{2}$  find A and B
13. Evaluate  $\tan 5^\circ \tan 25^\circ \tan 30^\circ \tan 65^\circ \tan 85^\circ$
14. Verify  $4(\sin^4 30^\circ + \cos^4 60^\circ) - 3(\cos^2 45^\circ - \sin^2 90^\circ) = 2$
15. Show that  $\tan 48^\circ \tan 23^\circ \tan 42^\circ \tan 67^\circ = 1$
16.  $\sec 4A = \operatorname{cosec}(A - 20)$  find A
17.  $\tan A = \cot B$  prove  $A + B = 90^\circ$
18. If A, B and C are interior angle of triangle ABC, prove that  $\sin \frac{B+C}{2} = \cos \frac{A}{2}$

#### CHAPTER-11

1. Divide 7.6 cm in the ratio 5:4
2. Construct a  $\triangle ABC$ ,  $BC = 7\text{cm}$ ,  $B = 45^\circ$  and  $A = 105^\circ$ . construct a similar triangle with sides  $\frac{4}{3}$  times of ABC
3. Draw a circle of radius 6cm. from a point 10cm away from its center draw a pair of tangents.
4. Draw a pair of tangents to a circle of radius 5cm which are inclined to each other at  $60^\circ$ .

#### MENSURATION

1. Find the perimeter of the shaded region if ABCD is a square of side 21 cm and APB & CPD



are semicircles. (Use  $\pi = \frac{22}{7}$ )

2. A sphere of diameter 6cm is dropped in a right circular cylindrical vessel partly filled with water. The diameter of the cylindrical vessel is 12 cm. If the sphere is completely submerged in water, by how much will the level of water rise in the cylindrical vessel?
3. Find the number of coins of 1.5 cm diameter and 0.2 cm thickness to be melted to form a right circular cylinder of height 10 cm and diameter 4.5 cm. The ninth term of an AP is

equal

to seven times the second term and twelfth term exceeds five times the third term by 2.

Find

the first term and the common difference.

4. Water is flowing at the rate of 0.7 m/sec through a circular pipe whose internal diameter is 2 cm into a cylindrical tank, the radius of whose base is 40 cm.
5. Determine the increase in the level of water in half hour.  
The perimeters of the ends of the frustum of a cone are 207.24 cm and 169.56 cm. If the height of the frustum be 8 cm, find the whole surface area of the frustum. (Use  $\pi = 3.14$ )
6. The minimum age of children to be eligible to participate in a painting competition is 8 years. It is observed that the age of youngest boy was 8 years and the ages of rest of participants are having a common difference of 4 months. If the sum of ages of all the participants is 168 years, find the age of eldest participant in the painting competition.
7. Four equal circles are described at the four corners of a square so that each touches two of the others. The shaded area enclosed between the circles is  $\frac{24}{7}$  cm<sup>2</sup>.  
Find the radius of each circle.
8. A right triangle having sides 15 cm and 20 cm is made to revolve about its hypotenuse. Find the Volume and Surface Area of the double cone so formed. (Use  $\pi = 3.14$ ).

## SCIENCE

1. Define light. Explain with the help of examples light is present.
2. Draw the ray diagrams of concave mirror and convex mirror and write down its nature, size and position of the image.
3. Draw the ray diagrams of convex lens and concave lens and write down its size, position and nature.
4. With the help of an activity show reflection takes place through mirror.
5. Draw and define all parts of human eye and explain its working completely.
6. Do any activity showing refraction takes place when light passes through rarer to denser mirror
7. Write chemical equations for the reactions taking place when
  - (i) zinc sulphide is heated in air
  - (ii) calcination of zinc carbonate is done.
8. How is copper obtained from its ore ? Write equations.
9. How is impure copper refined by electrolytic refining ?
10. Draw diagram and write reactions at cathode and anode for iron refining.
11. What is a thermite reaction? Explain with the help of an equation.
12. Explain table method of balancing with the help of an equation.
13. Explain the conditions of a chemical reaction with the help of balanced chemical equations.
14. Explain with the help of dihybrid cross, the law of segregation ?
15. Draw a neat labeled diagram of female reproductive structure and explain the functions of fallopian tube, ovaries and cervix
16. Why do menstruation takes place? Explain the term menarche and menopause

17. With the help of diagram explain the structure of double fertilization and triple fusion
18. What are the common surgical methods for family planning?
19. What is the function of epididymis and prostate gland in males
20. What are the secondary sexual characteristics in males and females developed due to the onset of puberty?

## **SSC** **CIVICS**

1. What do you mean by federal division of power?
2. "Social divisions of one kind or another exist in most countries." In the light of the above statement, mention a few basis of social division in India.
3. What is meant by defection in democracy? Explain.
4. Can you explain any five challenges and problems faced by Indian Democracy?
5. Examine the basic features of the caste system prevailing in India.
6. Recognize the form of power sharing which is represented by the Community Government in Belgium.
7. What measures are taken to improve the role of the women in political sphere?
8. Who are feminist?
9. Discuss the functions of the political parties.
10. Examine the various challenges to political parties
11. How communalism expressed in daily belief?
12. Discuss the outcomes of politics of social divisions.
13. Discuss the division of powers between states and centre.
14. Discuss the elements of Belgium model of accommodation.
15. How Caste and Politics are interrelated?

## **HISTORY**

1. Why did Slavic nationalist struggle in the 19<sup>th</sup> century? Give one reason.
2. What were the drawbacks of civil disobedience movement?
3. What were the main features of treaty of Vienna?
4. Why was non cooperation movement called off?

5. Define the term romanticism.
6. How did culture play an important role in developing nationalistic feeling?
7. Discuss the unification of Italy and Germany.
8. Why was the case of unifications of Britain a unique case?
9. Why do nationalistic leaders differ on the issue of separate electorate?
10. Do at least five maps related to the chapters.

## **GEOGRAPHY**

1. What is resource planning? Explain the different stages of resource planning.
2. What is sustainable development? Mention any two initiatives taken by the world institutions related to it.
3. What are the different types of the soil found in India?
4. How are mineral formed? Explain .
5. Give the distribution of the coal and iron ore in India.
6. What are the different types of agriculture? Explain .
7. What are the manufacturing industries? How are they significant?
8. Explain the various forms of Land degradation in India.
9. What is soil erosion? What are the factors responsible for it?
10. Do all the map skills given in the textbook related to each chapter so far done in class.

## **ECONOMICS**

1. What is development? What are the different goals of development?
2. What are the drawbacks of the classification of countries given by the world Bank?
3. Besides income what are the other goals of development?
4. Differentiate between human development and economic development.
5. What is globalisation? What factors are responsible for globalisation?
6. What are MNC's? How do they start production across countries?
7. What are trade barriers? Why India had put trade barriers after independence?
8. What do you mean by positive and negative form of credit?
9. What are self help groups? How do they work?
10. Mention the functions of the RBI.

