

**ROTARY PUBLIC SCHOOL**  
**WINTER HOLIDAYS HOMEWORK (2017-18)**  
**CLASS-IX**

**Dear Students**

**I hear, I forget**

**I see, I remember**

**I do, I understand**

**This homework has been made as a revision for your preparation for the forthcoming annual examination.**

**Please complete it and handover the following homework in A4 sized ruled sheets in a simple folder with your name, separately for each subject.**

**MATHS**

1. The floor of a rectangular hall has a perimeter 250 m . If the cost of painting the four walls at the rate of Rs 10 per m<sup>2</sup> is Rs 15000 , find the height of the hall . ( 6 m )
2. If the length , breadth and height of a cuboid are doubled , what will be the effect on its total surface area ? ( 4 times increase )
3. If the side of a cube is tripled , what will be the effect on its total surface area ? (9 times increase)
4. The surface area of a sphere of radius 5cm is 5 times the area of the curved surface of a cone of radius 4cm. Find the height of the cone. (3cm )
5. Three solid cubes of side 4cm each are joined to form a cuboid, then find its total surface area. (64cm<sup>3</sup>)
6. A right triangle with sides 3cm , 4cm and 5cm is revolved about the side 4cm. Find the curved surface area of the solid so formed. ( $\pi = 3.14$ ) (188.57cm<sup>2</sup>, 47.10cm<sup>2</sup>)
7. Thirty circular plates each of radius 14cm and thickness 3cm are placed one above the another to form a cylindrical solid. Find: the total surface area of the solid so formed . (9152cm<sup>2</sup>)
8. The radius and the height of a cone are in the ratio 3 : 4. the area of the base of the cone is 113.04cm<sup>2</sup>. Find the radius, height and curved surface area of the cone. ( $\pi = 3.14$ ) (6 ,188.4cm<sup>2</sup>)
9. Three solid cubes of side 60cm each are joined to form a cuboid, then find its curved surface Area of the solid so formed . (43200cm<sup>2</sup>)
10. Find the length of the longest pole that can be put in a room of dimensions 10m x 10m x 5m. (15cm)
11. A right triangle with sides 6cm , 8cm and 10cm is revolved about the side 8cm. Find the surface area of the solid so formed. (188.57cm<sup>2</sup>)
12. A class room is 7m long , 6.5m wide and 4m high. It has one door 3m x 1.4m and three windows each measuring 2m x 1m. The interior wall is to be colour washed. Find the cost of colour washing at the rate of Rs.3.50 per m<sup>2</sup> (Rs.342.30)
13. Circumference of the base of the cylinder , open at the top, is 132cm. The sum of radius and the height is 41cm. Find the cost of polishing the outer surface area of the cylinder at rate of Rs.10 per dm<sup>2</sup> . (Rs.402.60)
14. Show the equation  $2x - 5 = 10$  in one variable and two variable.
15. Name the quadrants in which the following points lie (-5 , -4) ( 2 , -1) (-7 , -3) and(- 2 , 3 )
16. Which of the following points lie on x axis , and which on y axis? A(0 , -7) , B ( 8 , 0) C (-7 , 0) , D ( 0 , -8)

17. Locate and write the coordinates of a point above x axis lying on y axis at a distance of 6 units from origin.
18. Below x axis , lying on y axis at a distance of 7unitsfrom origin .
19. In which quadrant will the point lie if
- the ordinate is -7 and the abscissa is -3?
  - the abscissa is -5 and the ordinate is -8 ?
20. Plot the points A ( 4 , -4 ) B ( -2 ,3 ) C ( -2 , -3 ) D ( 4 , -7 ) on graph paper .On joining the points in order what figure do you get ?
21. Mark the points ( 2 ,2 ) ,( 2 , -2 ) ( -2 , -2 ) and ( -2 , 2 ) On graph paper and join these points .Find the area of the figure you obtain .
22. By plotting the points and joining them, show that the points ( -1 , -1 ) , ( 2 , 3 ) and ( 8 , 11 ) are collinear .
23. The following table gives the number of pens and their corresponding costs . Plot these as ordered pair and join them.

X	6	2	4	5	7	8
y	18	6	12	5	21	24

24. Show the following equation a one variable and two variable.  $-2x - 6 = 3$
25. Plot graphs for the following linear equations
- $2x + 3y = -10$
  - $2x - 4y = -15$
  - $5x - 2y = 24 - 4$

## SCIENCE

### PHYSICS

- A sound wave travels at a speed of 1339m/s. If its wavelength is 1.5 cm, What is the frequency of the wave? Will it will be audible? (Ans:89266.67Hz)
- A submarines emits a sonar pulse, which returns from an underwater cliff in 1.02 sec. If the speed of sound in salt water is 1531 m/s, how far away is the cliff? (Ans:780.81 m)
- The frequency of a source of sound is 100 hertz. How many times does it Vibrate in a minute? (Ans: 6000 times)
- A child hears an echo from a cliff 4 seconds after the sound from a powerful cracker is produced. How far away is the cliff from the child? Speed of sound=340m/s. (Ans:680 m)
- A sonar device on a submarines sends out a signal and receives an echo 5 s later. Calculate the speed of sound in water if the distance of the object from the submarines is 3625m. (Ans:1450 m/s)
- If the speed of wave is 330 m/s and its frequency is 0.4 khz. Find distance between its consecutive compression and rarefaction. (Ans:0.4125m)
- A submarine sends a pulse of ultrasound that reflects back from an underwater iceberg. The pulse took 3 sec for its to and fro journey .If the speed of ultrasound in water is 1800 m/s, find the distance of iceberg from the submarine. (Ans: 2700 m)
- A boat at anchor is rocked by waves whose crests are 100m apart. The wave velocity of the moving crests is 2000 m/s. What is the frequency of rocking of the boat? (Ans 20 Hz)

### CHEMISTRY

- The atom of an element has 9 protons, 9 electrons and 10 neutrons.
  - What is the atomic number of the element?
  - What is the mass number of the element?
  - Name the element and give its electronic configuration.
  - Predict the valency of the element.
- Find the number of electrons, protons and neutrons in  $\text{Na}^+$  and  $\text{Cl}^-$  ions.

3. The average atomic mass of sample of element is 16.2 u. what are the percentage of isotopes  $^{16}_8\text{X}$  and  $^{18}_8\text{X}$  respectively.
4.  $^{14}_6\text{C}$  and  $^{12}_6\text{C}$  are symbols of two isotopes of magnesium. Compare these isotopes with respect to:
- Composition of the nuclei
  - Electronic configuration and valency
  - Chemical properties
  - Physical properties
- 5 Fill in the gaps in the following incomplete table:

Mass number	Atomic number	No. of protons	No. of electrons	Name of element
19	9	-----	-----	-----
24	---	12	-----	-----
35	----	----	17	-----

6. Represent an element X having atomic number 11 and mass number 23. Write its electronic configuration, valency . Write whether the element is metal or non-metal.
7. Calculate average atomic mass of chlorine having two isotopes of chlorine, Cl-35 and Cl-37. These isotopes exist in the ratio 3:1
8. Write chemical formulae of the following:
- Magnesium sulphate
  - Calcium oxide
  - Sodium sulphide
  - Aluminium phosphate
  - Potassium chloride
  - Calcium carbonate

## **BIOLOGY**

- How CFC's are harmful ?
- Refer to reference books to find out the Name of the bacteria that helps in the following processes- nitrification, ammonification, denitrification, nitrogen fixation and arrange them according to the process taking place in Nitrogen Cycle.
- Draw a flow chart showing different categories of diseases along with their causes and examples.
- Mention the dates on which the following days are celebrated- World T.B Day, Malaria Day, World AIDS Day.
- Describe the characteristics used in hierarchical classification of organisms.
- How is the complexity of cell structure & their no. used in classification.
- Mention seven categories of hierarchical classification.
- With the help of a flow chart depict five kingdom classification of organisms.
- Write the rules to be followed while writing the scientific names of organisms.
- Draw three diagrams of organisms for each group in kingdom plantae

## **SOCIAL SCIENCE**

### **CIVICS (Ch- Working of Institution)**

- What is SEBC?
- What is role of president in India?
- What are the prime minister's powers in India?
- What do you know about Mandal Commission?
- Why were some people against Mandal Commission recommendations?
- Why do democratic governments insist on political institutions?
- Which two houses form the parliament of our country?
- Can the houses be dissolved or is it permanent?
- What is an executive?
- Why are government functionaries called as the executives?

## **GEOGRAPHY(Ch- Population)**

1. What does census mean?
2. How is density of population calculated ?
3. What was the population density of India in 2011 census?
4. Why do some states of India have sparse population?
5. What does growth of population mean?
6. How is an Annual growth rate calculated?
7. What is the impact of migration on population?
8. What does 'Age composition' mean?
9. What is referred as Occupational structure?
10. What is NPP?

### **Map Work (on an outline map of India Mark the following)**

1. Areas of evergreen forest
2. Areas of dry deciduous forest
3. Two national parks each in northern, southern ,eastern and western part of the country

## **ECONOMICS(Ch- Food Security)**

1. What is meant by famine?
2. Mention the two dimensions of hunger.
3. Who suffer from chronic hunger and why?
4. What does FCI stands for?
5. What is minimum support price?
6. What is known as issue price?
7. Why is food security essential in India?
8. How is food security affected during a calamity?

### **PROJECT WORK**

**Theme : Disaster Management**

**Prepare a project on Earthquake covering all the steps : Preparedness , Response and Relief, Recovery , Mitigation and Prevention .**

**(Page Limit - 5 to 8 pages)**