

## English

1. From newspapers and magazines, collect examples of the following and paste them in scrapbook
a) One example each of product and service Display advertisement.
b) At least six different categories of classified advertisement.
2. Draft an attractive poster on any TWO of the following topics:
a) Water conservation
b) Road safety
c) Organ/eye donation
d) Importance of physical activities/exercise
3. Read all the contents which have been completed in the class
4. Reading is a wonderful and relaxing pass-time. Try read any two of the following
a) My experiments with truth by Mahatma Gandhi
b) Eat that frog by Brian Traci
c) Under the Banyan Tree by R.K Narayan
d) Malgudi Days by R.K Narayan

* Write the theme of any two novels along with pictures.


## Physics

1. Make one chart related to your XI PHYSICS syllabus.
2. Learn \& write dimensional formulae of all physical quantities on A-4 sheet in a colourful manner.
3. Sketch graphical representation of motion on white chart for display purpose.
4. Prepare an investigatory project.
5. Read \& make notes for chapter-2 \& chapter-3 for written test purpose(After the end of summer vacation).

## Chemistry

1. Learn chapters Some Basic concept of chemistry, structure of Atom, classification of periodic table which you have already studied
2. Write notes of chapter no-3 classification of periodic table in your note book.
3. Make mind map of first two chapters which you have studied in A-4 sheet.
4. Make a chart for all the formulas of some basic concepts of chemistry and structure of atom.

## Mathematics

## Topic - Set theory

Q. 1 If $\mathrm{A}=(1,2,3,4,5)$. $\mathrm{B}=(4,5,6,7,8) . \mathrm{C}=(7,8,9,10,11)$ and $\mathrm{D}=(10,11,12,13,14)$.
Find (a) AUB
(b) $B \cup C$
(c) $A \cap C$
(d)A $\cap D$
(e) $A \cap B$

And also verify the following
(a) $\quad A \cup(B \cap C)=(A \cup B) \cap(A \cup C)$
(b) $A \cap(B \cup C)=(A \cap B) U(A \cap C)$
(c) $\quad A \cap(B-C)=(A \cap B)-(A \cap C)$
Q. 2 Let $\mathrm{U}=(\mathrm{I}, 2,3,4,5,6,7,8,9)$. $\mathrm{A}=(2,4,6,8)$ and $\mathrm{B}=(2,3,5,7,8)$.
Find (i) A'
(ii) ( $\mathrm{A}^{\prime}$ )'
(iii) $(A \cup B)^{\prime}$
(iv) $(A \cap B)$ '

Verify the following :
(i) $(A \cap B)^{\prime}=A^{\prime} U B '$
(ii) (AUB)'= A' $\cap B^{\prime}$
(iii) $\mathrm{B}-\mathrm{A}=\mathrm{B} \cap \mathrm{A}^{\prime}$
Q. 3 Let $A$ and $B$ be two sets such that $n(A)=24, n(A U B)=46$ and $n(A \cap B)=8$.

Find: (i) $n(B) \quad$ (ii) $n(A-B) \quad$ (iii) $n(B-A)$
Q. 4 What is the number of subsets and proper subsets of a set containing n-elements.
Q. 5 In a survey of 800 students in a school 200 were listed as taking apple juice, 250 taking orange juice and 125 were taking both apple as well as orange juice. Find how many students were taking neither apple juice nor orange juice.
Q. 6 There 40 students in a chemistry class and 60 students in physics class. Find the number of students which are either in Physics class or Chemistry class in the cases.
(i) the two classes meet at the same hour.
(ii) the two classes meet at different hours and 20 students are enrolled in both the subjects.
Q. 7 In a class of 35 students, 17 have taken mathematics 10 have taken mathematics but not economics.

Find the number of students who have taken both mathematics and economics and the number of students who have taken economics but not mathematics, if it is given that each student has taken either mathematics or economics or both.
Q. 8 If $A(x: x=2 n+1, n \leq 4, n \in N)$ and $B=(y: 2<y<7, y \in N)$,
find (i) $A \cap B$
(ii) AUB
Q. 11 Using Venn Diagram of algebra of sets, show that
(i) $(A \cup B) \cap(A \cup B ')=A$
(ii) $A U(B-A)=A U B$
Q. 10 Of the members of three athletic teams in a certain school, 21 are in the basketball team, 26 in hockey team and 29 in the football team. 14 play hockey and basketball, 15 play hockey and football, 12 play football and basketball and 8 play all the three games. How many members are there in all?
Q. 11 If $A(a, b, c)$. write subsets of set $A$. Also mention the proper subsets of $A$.

## Topic - Trigonometric Functions

Q. 12 Find the degree measure for the following radian measure:
(i) $\frac{7 \pi}{12}$
(ii) $\frac{1}{4}$
(iii) -3
Q. 13 Find the radian measure for the following degree measure:
(i) $-22^{\circ} 30^{\prime}$
(ii) $5^{\circ} 37{ }^{\prime \prime} 30^{\prime \prime}$
(iii) $-270^{\circ}$
Q. 14 The minute hand of a clock is 70 cm long. How many centimeters does its tip 44 cm move in 6 minutes?
Q. 15 Find the values of:
(i) $\sin -\frac{21 \pi}{4}$
(ii) $\cos \frac{83 \pi}{6}$
(iii) $\tan \frac{35 \pi}{6}$
(iv) $\sin \left(1125^{\circ}\right)$
(v) $\tan \left(2220^{\circ}\right)$
Q. 16 A horse is tied to a post by a rope. If the horse moves along a circular path always keeping the rope tight and describes 88 m when it has traced out $72^{\circ}$ at the center, find the length of the rope.
Q. 17 Prove that $\cos x+\cos \left(\frac{2 \pi}{3}+3\right)+\cos \left(\frac{2 \pi}{3}-3\right)=0$
Q. 18

Find the values of (i) $\operatorname{Sin}(a+b)$ (ii) $\operatorname{Cos}(a+b)$ (ii) $\tan (a+b)$, if $\operatorname{Cos} a=\frac{-12}{13}$ and $\operatorname{Cos} \operatorname{Sb}=\frac{-24}{7}$ , where ' $a$ ' lies in the second quadrant and ' $b$ ' in the third quadrant
Q. 19 Prove that $\tan 70^{\circ}=\tan 20+2 \tan 50^{\circ}$
Q. 20

Prove that $\frac{\operatorname{Sin} x+\operatorname{Sin} 3 x+\operatorname{Sin} 5 x+\operatorname{Sin} 7 x}{\cos x+\cos 3 x+\cos 5 x+\cos 7 x}=\tan 4 x$
Q. 21 The angles of a triangle are A.P. such that the greatest is 5 times the least. Find the angles in radians.
Q. 22 Prove that (i) $(1+\tan A \tan B)^{2}+(\tan A-\tan B)^{2}=\operatorname{Sec}^{2} A . \operatorname{Sec}^{2} B$
Q. 23 If $\sin x=\frac{12}{13}$ and $x$ lies in 2 nd quad, then find the value of $8 \tan x-\sqrt{5} \sec x$
Q. 24 If $\tan \mathrm{A}=\frac{m}{m+1}, \tan \mathrm{~B}=\frac{1}{2 m+1}$ then prove that $\mathrm{A}+\mathrm{B}=\frac{\pi}{4}$
Q. 25 Prove that $\tan 3 A \tan 2 A \tan A=\tan 3 A-\tan 2 A-\tan A$
Q. 26 Prove that $\cot x \cot 2 x-\cot 2 x \cot 3 x-\cot 3 x \cot x=1$
Q. 27 Prove that For any real numbers $x$ and $y$, $\sin x=\sin y$ implies $x=n \pi+(-1)^{n} y$, where $n \in Z$
Q. 28 Prove that for any real numbers $x$ and $y, \cos x=\cos y$, implies $x=2 n \pi \pm y$, where $n \in Z$
Q. 29 Prove that if $x$ and $y$ are not odd multiple of $\frac{\pi}{2}$, thentan $x=\tan y$ implies $x=n \pi+y$, where $n \in Z$
Q. 30 Find the Principle solution \& general solution for each of the following equations:
(i) $\operatorname{Cos} 4 x=\operatorname{Cos} 2 x$
(ii) $\operatorname{Cos} 3 x+\operatorname{Cos} x-\operatorname{Cos} 2 x=0$
(iii) $\operatorname{Sin} 2 x+\operatorname{Cos} x=0$
(iv) $\operatorname{Sec}^{2} 2 x=1-\tan 2 x$
(v) $\operatorname{Sin} x+\operatorname{Sin} 3 x+\operatorname{Sin} 5 x=0$

## Topic - Linear Inequality

Q. 31 Solve $4 x-7>5 x-2$ when (i) $x$ is a natural number (ii) $x$ is an integer (ii) $x$ is a real number.
Q. 32 Solve the following linear inequations, show the solution on number line:
(i) $\frac{2 x-3}{4}+9 \geq 3+\frac{4 x}{3}$
(ii) $\frac{3(x-2)}{5} \geq \frac{5(2-x)}{3}$
(iii) $\frac{5 x-2}{3}-\frac{7 x-3}{5}>\frac{x}{4}$
Q. 32 Solve the system of linear equations, show the solution on number line:
(i) $\frac{5 x}{4}+\frac{3 x}{8}>\frac{39}{8}, \frac{2 x-1}{12}-\frac{x-1}{3}<\frac{3 x-1}{4}$
(ii) $2(2 x+3)-10<6(x-2), \frac{2 x-3}{4}+6 \geq 2+\frac{4 x}{3}$
Q. 33 Solve the graphically
(i) $3 x+4 y>12, y>1, x>0$
(ii) $2 x+y$ s $24, x+y<11,2 x+5 y<40, x>0 . y>0$
(iii) $x-2 y>0.2 x-y \leq-2, x>0, y \geq 0$
Q. 34 In first four papers each of 100 marks, Rohit got $72,83,73,95$ marks. If he wants an average of greater than or equal to 75 marks and less than 80 marks, find the range of marks he should score in the fifth paper.
Q. 35 The sum of two natural numbers is 121. If the sum of bigger number and four times the smaller is equal to or greater than 271, find all possible values of the smaller number.
Q. 36 How many litres of water will have to be added to 1250 litres of $45 \%$ solution of acid so that the resulting mixture will contain more than $25 \%$ but less than $30 \%$ acid content?

