**Birla Public School**

**Summer Holidays Home assignment (2018-19)**

**Class-IX**

**Sub-Chemistry**

1. Collect information about any 10 elements ( like atomic number, atomic mass symbol, valency , metal/nonmetal) and make 10 small cards for each element.

2. Prepare a model/project/ 4minute activity on any one topic from your Chemistry syllabus (Reference can be NCERT textbook, any reference book or internet etc.)

3. Read the following topics thoroughly and highlight the main points and pen down in your notebook :

a. Properties of solids, liquid and gases (Ch- Matter in our Surrounding)

b. Diffusion, Evaporation and Sublimation (Ch- Matter in our Surrounding)

c. Elements, Compounds (Ch- Is matter around us pure)

d. Solutions and colloids (Ch- Is matter around us pure)

4. Prepare 10 questions from the topics read (5 MCQs, 5 short questions)

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**Summe**r **Home Assignment 2018-19**

**Class-IX-Biology**

1. Prepare a project report by collecting information about the topics

given below :

a) Electron microscope.

b) Importance of osmosis in plants and animals.

**BIRLA PUBLIC SCHOOL, PILANI**

**SUMMER VACCATION ASSIGNMENT 2018-19**

**CLASS- IX SUBJECT-PHYSICS**

1. **Prepare a PPT on the topic “conservation of energy” that should include the presentation of a working model along with principal involved , material required for construction , procedure of construction and the contribution of this model for the benefit of society , if at all it is used as a technology. Also try to bring the material to the school for its construction. (Take the printout of the PPT).**
2. **Under the supervision of an adult note the electric meter reading of your home at the beginning of the month of June as well as at the end of the month. Subtract the two reading’s to find the number of units of electrical energy consumed in the month(in KW-hr) and multiply with the cost to find the monthly electrical bill for the month of June -2018.**
3. **Download the road map between any two cities of India. Tie a knot at one end of the thread . Keep the knot at the position of one of the city A and move the thread along with the road to reach other city B. Put the mark on the thread on reaching to the other city B. Measure the length of the thread and multiply with the scale to get the distance. Next draw a straight line joining the two cities A and B. Measure the straight line distance between the two cities and multiply with the same scale to get the displacement.**
4. **On the chart paper draw the different types of graph showing different types of motion. (from motion chapter) OR draw the diagram of Human ear.**
5. **Paste the picture of any ten musical instruments and write their name. In each of the instrument name the part or thing that vibrates to produce sound.**

**Note- Assignment no 2,3 & 5 should be done either in a thin notebook or in a file.**

**VIDYA NIKETAN**

**BIRLA PUBLIC SCHOOL,(MIDDLE SECTION),PILANI(RAJ.)**

 **SUMMER HOME ASSIGNMENT**

**SUBJECT : MATHEMATICS**

 **CLASS : IX**

 **2018-19**

**NOTE: SOLVE THE FOLLOWING PROBLEMS IN SEPARATE NOTE BOOK.**

 1.Express the following rational numbers in $\frac{p}{q}$ form.

 (a) 0.007 (b) 32.456 (c) 7.454545……. (d) 12.10101010……

 2.Prove that $\sqrt{5}$ is an irrational number.

 3.Give an example of two rational numbers, the product of which is :

 (i) a rational number (ii) an irrational number

 4. Find three irrational number between $\sqrt{5}$ and $\sqrt{7}$.

 5. Find four rational numbers between 3.454554555……. and 4.121231234…

 6. Represent $\sqrt{4.5}$ on the real number line.

 7. Simplify the following.

 (i) 16 X 2n+1 – 4 X 2n  (ii) 5n+3 – 6 X 5n+1

 16 X 2n+2 - 2 X 2n+2  9 X 5n – 22 X 5n

 8. If 9x+2 = 720 +9x, find the value of (4x)1/x

 9. If a = x yp-1, b = x yq-1 and c = xyr-1, prove that aq-r b r-p c p-q = 1

 **PAGE 1/5 P.T.O**

 10. If ax = by  = cz and b2 = ac prove that y = $\frac{2xz}{x+z}$

 11. If 2x  = 3y = 12 z ,show that $\frac{2}{x}$ + $\frac{1}{y}$ - $\frac{1}{z}$ = 0

 12. If 2x  X 2-y X 5 -z = 2160, find x,y and z and hence compute the value

 of 3x  X 3y X 5 z .

 13. If 53x = 125 and 10 y = 0.001, find x and y.

 14.Find the value to the three places of decimals; of each of the following. it is

 given that $\sqrt{2}$ = 1.414, $\sqrt{3}$ = 1.732 and $\sqrt{5} $= 2.236 (approx)

 (i) $\frac{\sqrt{2}+ 1}{\sqrt{5}}$ (ii) $\frac{2- \sqrt{3}}{\sqrt{3}} $ (iii) $\frac{\sqrt{10}-\sqrt{5} }{\sqrt{2}}$

 15. Simplify each of the following by rationalizing the denominator.

 (i) $\frac{ \sqrt{5}}{\sqrt{5 }+ \sqrt{3}}$ (ii)$ \frac{7+3\sqrt{5}}{7-3\sqrt{5}}$ (iii) $ \frac{2\sqrt{3}-\sqrt{5}}{2\sqrt{2}+3\sqrt{3}}$

 16. Simplify : $\frac{ 4\sqrt{2}}{\sqrt{15 }-3 \sqrt{2}}+ \frac{3 \sqrt{5}}{\sqrt{10 }- \sqrt{3}}+$ $\frac{ 5\sqrt{3}}{\sqrt{6 }+ \sqrt{5}}$

 17.Rationalise : $\frac{ 1}{\sqrt{7 }+\sqrt{3}- \sqrt{2}}$

 18. If a = $\frac{\sqrt{2}+ 1}{\sqrt{2}-1}$ and b = $\frac{\sqrt{2}- 1}{\sqrt{2}+1}$ , then find the value of a2 + b2 - 4ab

 19.If a = 3 + 2$\sqrt{2}$, then find the value of :

 (i) a2 +$ \frac{1}{a2}$ (ii) a3 +$ \frac{1}{a3}$

 20. Find the value of a and b if : $\frac{\sqrt{7}- 1}{\sqrt{7}+1}$ - $\frac{\sqrt{7}+ 1}{\sqrt{7}-1}$ = a + b$\sqrt{7}$

 21.If a = 5 - 2$\sqrt{6}$ then find the value of :

 (i) $\sqrt{a}-\frac{1}{\sqrt{a}} $ (ii) a2 +$ \frac{1}{a2}$

 22. If a = 9 + 4$\sqrt{5}$ and b = $\frac{1}{a}$ , then find the value of :

 (i) a2 +b2 (ii) a3 +b3 **PAGE 2/5 P.T.O**

23. If x = $\frac{\sqrt{3}+\sqrt{2} }{\sqrt{3}-\sqrt{2}}$ and y = $\frac{\sqrt{3}-\sqrt{2} }{\sqrt{3}+\sqrt{2}}$ ,then find the value of x2 + y2 + xy

 24. If a = $\frac{\sqrt{3}+1 }{\sqrt{3}- 1}$ and b = $\frac{1}{a}$ , then find the value of a2 – b2 + ab

 25. If x = $\frac{\sqrt{a+2b}-\sqrt{a-2b} }{\sqrt{a+2b}-\sqrt{a-2b}}$ , prove that bx2 – ax + b = 0

 26.Find the coefficient of x2 in the polynomial p(x) = (5-2x) (7x + 5x2 – x4)

 27.If p(x) = x2 -3√3 x+ 5, then find the value of p(2√3)

 28.If k is the zero of the polynomial x6 – k x5 +2x4 -2kx3 +3x –k +2, then

 find the value of k.

 29.If the polynomial 3x4 -4x3 -3x-1 is divided by x-1, then find the

 remainder.

 30.If a+b+c = 11 and ab + bc +ca =38, find the value of a2 + b2 + c2.

 31.Write the factors of x3 – 8y3

 32.Using long division method show that the polynomial p(x) = x3 + 1 is

 divisible by q(x) = x+1.

 33.Show that the polynomial 3x3 + 8x 2 – 1 has no integral zeroes.

 34.If the polynomial 2x3 + ax2 +3x -5 and x3 +2x2 -5x –a leaves the same

 remainder, when divided by x-1, then find the value of a.

 35.If the polynomial x4 – 2x3 +3x2 –px +8 is divided by x-2, it leaves a

 remainder 10. Find the value of p.

 36. If x-1 and x+3 are factors of the polynomial x3 –ax2 -13x –b, then find

 the values of a and b.

 **PAGE 3/5 P.T.O**

 37. Find the zeroes of the following polynomials:

 (a) 15x2 +x -6

 (b) 3√2x2 – 5x +√2

 (c) 3x3 –x2 -20x -12

 (d) x3 -2x2 –x +2

 (e) x3 +x2 – 4x – 4

 (f) 3x3 – x 2 – 3x +1

 38. Using suitable identities, find the following:

 (a) (2x – 3y) ( 4x2 +6xy + 9 y2)

 (b) (1/x + y/3)3

 (c) 8p3 +12/5 p2 +26/25p + 1/125

 (d) (2x-y)3 – (2x +y)3

 (e) (3x -2y +5z) (9x2 +4y2 +5z2 +6xy +10yz -15zx)

 (f) 8x3 – 27y3 +64z3 +72xyz

 39.Simplify : 7x3 +8y3 – (4x +3y) (16x2 -12xy +9y2)

 40.Without actual calculation, find the value of 483 – 303 -183

 41. Factorize : (2x- y – z)3 + (2y – z – x)3 + (2z –x –y)3

 42. If 2x + 3y = 8 and xy = 2, find the value of 8 x3 + 27 y3

 43. If a + 2b + 3c = 0, find a3 +8b3 +27c3

 44.If x – 2/x = 3, find the value of x3 – 8/x3

 45. If x = 2 - √ 3, then find the value of x3 – 1/x3

 **PAGE 4/5 P.T.O**

 46. If ab + bc +ca =0, then find the value of:

$$\frac{1}{a^{2}-bc}+\frac{1}{b^{2}-ca}+\frac{1}{c^{2}-ab}$$

 47. If a +b +c =9 and ab +bc +ca = 26 , find a2 +b2 +c2

 48. Write the possible expression for the dimensions of cuboid with volume

 12ky2 +8ky -20k

 49. If polynomial 2x3 –ax2 +bx +4 has x+1 as a factor and leaves remainder 4

 when divided by 2x+1, find the values of a and b.

 50. Without actual division , prove that p(x) = 2x4 -5x3 +2x2 –x +2 is divisible by

 x2 -3x +2.

 51.If both x-2 and 2x-1 are factors of px2 +5x +r, show that p=r

 **PAGE 5/5**

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**BIRLA PUBLIC SCHOOL (MIDDLE SECTION)**

**HOME ASSIGNMENT**

**ENGLISH**

**CLASS-IX**

1. **Write an account of the journey that you might have taken in the vacation with or without your parents.(Travelogue)**
2. **Prepare a cutting of the news items of everyday and paste it in a copy.**
3. **Prepare a project on R.K.Laxman as a story teller.**