



Summer Valley School, Dehradun

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Class X /Assignment 1

5 April 2020

ENGLISH LANGUAGE:

ASSIGNMENT-1

1. He said that he had written a letter.
2. He said that it had been blowing hard at six.
3. He said that he was too ill to speak then.
4. He said that the evil that men do lives after them.
5. He thanked me.
6. He demanded of me why I had struck him.
7. The mother asked her daughter if/whether she knew where Prem was.
8. The teacher advised the boys to work hard and steadily.
9. The father forbade the son to go to the cinema daily.
10. He requested to let him go.

ASSIGNMENT-2

1. of
2. at
3. to
4. to
5. for
6. of
7. on
8. In
9. in
10. to
11. of
12. to
13. to
14. to
15. to
16. to
17. for
18. of
19. at
20. over



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COMPUTER:

(Solution)

Ans1. Class - A Class is a blue print representing a set of objects that share common characteristics and

behavior. For example “Honda City” is class of cars, but a Honda City Car having a particular registration number say DD – 5684 is an object of this class type.

Object - an object is an entity with a specific identity and having specific characteristics and specific

behaviour. Example Dog is a Class but a dog name Leo residing with Rana's is an object of class type.

Ans 2.

I. Data abstraction - Abstraction refers to the act of representing essential features without including the background details or explanation. Abstraction hides the internal details and describes things in simple terms, For example in a switchboard, we only press certain switches according to our requirement it's internal circuit we need not to know.

II. Encapsulation - The wrapping up of data and functions (that operates on the data) into a single unit (called class) is known as encapsulation. The only way to access the data is provided by the functions that are combined along with the data. These functions are called member functions or methods in Java.

III. Modularity - The act of partitioning a program into individual Components is called modularity. Modularity is the property of a system that has been decomposed into a set of cohesive and loosely coupled modules.

IV. Inheritance - Inheritance is the capability of one class of things to inherit or derived capabilities or properties from another class. For example - the class car inherits some of its properties from the class automobiles which inherits some of its properties from another class vehicles.

V. Polymorphism - Polymorphism is a property by which the same message can be sent to objects of several different classes, and each object can respond in a different way depending on its class.

Ans 3. Bytecode - The program written in Java i. e human readable form called source code is compiled

into a special type of machine language called bytecode. This code is independent of the machine on

which the program is to run. This makes a Java Program highly portable and platform independent.

Ans 4. Character set - Java uses the Unicode character set. Unicode is a 2 byte character code that has



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character representing almost all characters in almost all human alphabets and writing system around

the world including English, Arabic Chinese and many more.

Keywords -keywords are the words with special meaning associated with them. These are reserved for

special purpose and must not be used as normal identifier name. For example default, break, double,

public,byte, char, long, class , float, int etc.

Literals – literals are also known as constant, they are the data items that have fixed data values. Java

allows several kinds of literals :

Integer literals, floating-point literal, boolean literals, character literals, string literals, boolean literals .

Identifiers - identifiers are the names given by the programmer to various program units of Java.

Identifiers are the names of variables, methods, class, packages and interfaces etc.

Variables - A variable is a named location, Which holds a data value of a particular data type.

Variable is

declared as per the following syntax:

<type > <variable name>;

Constant - A constant value represents a named value that remains fixed throughout an entire

program. Constant is declared in similar way as variable but with keyword final, for example -
final double simpleIntrest = 0.25;

Ans 5. Data type - data types are means to identify the type of data and associated operations of

handling it. Each value that you use in a program has a data type. Java provides many data types to

support various types of data. There are two types of data:

I. Primitive data type - example int, double float, char, Boolean

II. Reference data type - example arrays, object.

Ans 6.

I. Arithmetic operator - These are the operators which help in arithmetic operations, they always returns a numeric value . For example +, -, *, / and % operators are the arithmetic operators.

II. Relational operators - these operators, also sometimes called comparison operators, compare the values of two variables or literals etc. these are : >, <, ==, >=, <=, !=.



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III. Logical operators - these operators are used to combine two or more than two relational expressions to make Complex expressions For decision making. These are: && (AND), || (OR), and !(not).

Ans 7. // program to enter 10 numbers and print the sum of their square

```
import java.util.*;
Class SumSquare
{
public static void main(String arg[])
{
Scanner obj = new Scanner(System.in);
int num, sum=0;
System.out.println("Enter 10 numbers");
for(int i=1; i<=10; i++)
{ num = obj. nextInt();
sum = sum + (num * num);
}
System.out.println("The sum of the square of 10 numbers are"+ sum);
```



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PHYSICS:

REFRACTION BY SPHERICAL LENS

Qs.1 Image formation by convex lens

Position of the object	Ray Diagram
Infinity	
Beyond $2F_1$	
At $2F_1$	
Between F_1 and $2F_1$	
At focus $2F_1$	
Between F_1 and optical center O	

Position, nature and size of image for convex lens

Position of the object	Position of the image	Relative size of the image	Nature of the image
Infinity	At focus F_2	Highly diminished, point sized	Real and inverted
Beyond $2F_1$	Between F_2 and $2F_2$	Diminished	Real and inverted
At $2F_1$	At $2F_2$	Same size	Real and inverted
Between F_1 and $2F_1$	Beyond $2F_2$	Enlarged	Real and inverted
At focus $2F_1$	At infinity	Infinitely large or highly enlarged	Real and inverted
Between F_1 and optical center O	On the same side of the lens as the object	Enlarged	Virtual and erect



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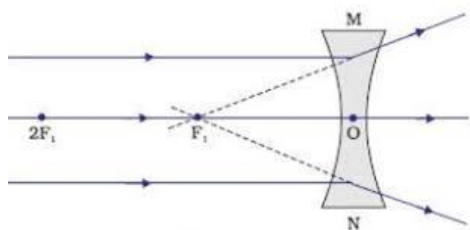
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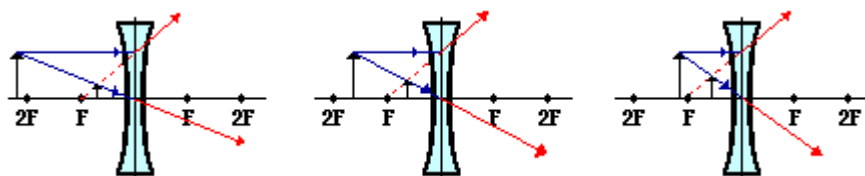
PHYSICS:

Qs. 2 Diverging action of a concave lens



Qs. 3 Image formation by concave lens

(image formed is always virtual, erect and diminished)





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CHEMISTRY:

Answer 1(a).

- 1 Atomic radius .It is the distance between the centre of the nucleus and the outer most shell of the atom.
- 2 Ionisation potential .It is the amount of energy required to remove an electron from the outer most shell of an isolated gaseous atom.
- 3 Electron affinity .It is the amount of energy released when an atom in the gaseous state accepts an electron to form an anion.
- 4 Electro negativity.It is the tendency of an atom to attract electrons to itself when combined in a compound.
- 5 Non metallic and metallic character. In terms of electron loss or gain an element is a Nonmetal -if it gains one or more electrons .Metal -if it loses one or more electrons.

Answer 1(b).The factors which affect the following properties are:-

1. The atomic size.
2. Nuclear charge.

Answer 1(c).

- 1 atomic size increases down the group and decreases across a period.
- 2 ionisation potential increases across a period and decreases down a group.
- 3 electron affinity increases across a period and decreases down a group.
- 4 electronegativity increases across a period and decreases down a group.
5. metallic character decreases and non metallic character increases across a period whereas metallic character increases and non metallic character decreases down a group.

Answer 2.

2016.

1.A

- 2.(1) electronegativity
(2) valence electrons

3. (1) less than.
(2)less than.

- 4.(1) five valence electrons .
(2)M
(3) T
(4) T

- 5.(1) metallic
(2) smallest.

2017.

- 1.ionisation potential.

2.(1).15

(2).19

(3) 8

(4) 4

(5) 2

- 3.(1) Helium neon argon
(2)potassium sodium lithium
(3) bromine chlorine fluorine
(4) lithium sodium potassium.

2018

- 1 electron affinity.

- 2 (1) inert gas have stable electronic configuration.

(2) atomic size decreases and nuclear charge increases.

- 3 (1) higher

(2) higher

(3) smaller

Answer 3

29(a) page no 18.

1.lithium .chlorine

2.helium

3.argon

4.three

5.one



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CHEMISTRY:

- 6.metals [.Na.Mg.Al.](#)
nonmetals.C N O F
7.eighteen
8.chlorine.
9.Mg(OH)₂
10.HCL
11.Na₂SO₃
12.argon
13.covalent.
14.amphoteric
15.sodium.
16.nitrogen
17.lithium
18.flourine
19.magnesium
20.flourine
21.period 4.group 2
22.chlorine.

29(b)page 19

- 1.seven.period 3 group 2.
2.increase by 1.remain same
3.decrease.increases
4.most.un
5.reducing .donors
6.Br
7.electronic configuration
8.basic to acidic
9.positive.number
10.more.
11 decreases
12.increases .increases
13.decreases
14.0
15.more
16.covalent
17.metallic
18.gains
19.small high
20.nonmetal
21.more
22.higher more
23.larger zero
24.decreases increases decreases
.increases decreases decreases

Answer 5

Unit test paper.1

Q1

- 1.smaller
2.higher
3.higher
4.less
5.lose

Q2

- 1.ionic
2.SiCl₄
3.strongly basic
4.eight



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CHEMISTRY:

5.(2,8,2)

Q3

1 light.metals.large.high high decreases increses.reducing lower larger.

Q4

1.C

2.A

3.B

4.E

5.D

Q5

1. Due to recurrence of similar valence shell electronic configuration.

2. After definite intervals of atomic number recurrence of similar electronic configuration takes place .

3. more the nuclearcharge .less the atomic size.

4. increase in atomic radii dominates over increase in nuclear charge therefore overall electronegativity decreases.

5. larger the electronegativity difference between combining atoms electron transfer takes place easily.and the bond between them is electrovalent.

Q6

1.Na Mg P Cl

2.Li ,C,N,F

3.Na ,Al,S,Cl

4.Li,C,O,F

5.He,Ne,Ar.

BIOLOGY:

CHAPTER 16- POLLUTION

Q1. Name the following

- i. Pollutants
- ii. Bio-degradable
- iii. Waste
- iv. Carbon dioxide/sulphur dioxide/oxide of nitrogen
- v. Smog

Q2. State true or false for the following

- i. False
- ii. False
- iii. True
- iv. False
- v. False.

Q3. Differentiate between

- i. Carbon dioxide/sulphur dioxide/carbon monoxide & smoke
- ii. Vehicular/industrial & sewage/household/industrial/thermal

Q4. Compressed Natural Gas



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MATHS:

Quadratic Equations

Mathematics
X
Solutions

Q1

(a) $2x^2 + x - 6 = 0$
 $2x^2 + 4x - 3x - 6 = 0$
 $2x(x+2) - 3(x+2) = 0$
 $(2x-3)(x+2) = 0$
 $2x-3=0, x+2=0$
 $x = \frac{3}{2}, -2$

(b) $3x^2 - 5x - 12 = 0$
 $3x^2 - 9x + 4x - 12 = 0$
 $3x(x-3) + 4(x-3) = 0$
 $(3x+4)(x-3) = 0$
 $x = 3, -\frac{4}{3}$

(c) $(x-4)^2 + 5^2 = 13^2$
 $(x-4)^2 + 25 = 169$
 $(x-4)^2 = 169 - 25 = 144$
 $(x-4)^2 = 144$
 $x-4 = \sqrt{144} = \pm 12$
 either $x-4 = 12$, or $x-4 = -12$
 $x = 16, x = -8$

(d) $3(x-2)^2 = 147$
 $(x-2)^2 = \frac{147}{3} = 49$
 $x-2 = \sqrt{49} = \pm 7$
 $x-2 = 7, x-2 = -7$
 $x = 9, -5$

(e) $3(x^2 - 6) = x(x+7) - 3$
 $3x^2 - 18 = x^2 + 7x - 3$
 $3x^2 - x^2 - 7x - 18 + 3 = 0$
 $2x^2 - 7x - 15 = 0$
 $2x^2 - 10x + 3x - 15 = 0$
 $2x(x-5) + 3(x-5) = 0$
 $(2x+3)(x-5) = 0 \therefore x = 5, -\frac{3}{2}$

(f) $3x - \frac{8}{x} = 2$
 $\frac{3x^2 - 8}{x} = 2$
 $3x^2 - 8 = 2x$
 $3x^2 - 2x - 8 = 0$
 $3x^2 - 6x + 4x - 8 = 0$
 $3x(x-2) + 4(x-2) = 0$
 $(3x+4)(x-2) = 0$
 $x = 2, -\frac{4}{3}$

(g) $\frac{(x+2)}{(x+3)} = \frac{(2x-3)}{(3x-7)}$
 $(x+2)(3x-7) = (x+3)(2x-3)$
 $3x^2 - 7x + 6x - 14 = 2x^2 - 3x + 6x - 9$
 $3x^2 - x - 14 = 2x^2 + 3x - 9$
 $3x^2 - 2x^2 - x - 3x - 14 + 9 = 0$
 $x^2 - 4x - 5 = 0$
 $x^2 - 5x + x - 5 = 0$
 $x(x-5) + 1(x-5) = 0$
 $(x+1)(x-5) = 0$
 $x = -1, 5$



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MATHS:

(h) $\frac{x}{x-1} + \frac{x-1}{x} = 2\frac{1}{2}$

Let $\frac{x}{x-1} = a$

$$a + \frac{1}{a} = \frac{5}{2}$$

$$\frac{a^2 + 1}{a} = \frac{5}{2}$$

$$2a^2 + 2 = 5a$$

$$2a^2 - 5a + 2 = 0$$

$$2a^2 - 4a - a + 2 = 0$$

$$2a(a-2) - 1(a-2) = 0$$

$$(2a-1)(a-2) = 0$$

$$a = 2, \frac{1}{2}$$

$$\Rightarrow \frac{x}{x-1} = 2, \frac{x}{x-1} = \frac{1}{2}$$

$$x = 2x - 2, 2x = x - 1$$

$$2 = 2x - x, 2x - x = -1$$

$$x = 2, x = -1$$

(i) $\frac{1}{x-3} - \frac{1}{x+5} = \frac{1}{6}$

$$\frac{x+5 - x+3}{(x-3)(x+5)} = \frac{1}{6}$$

$$48 - (x^2 + 5x - 3x - 15) = (x-3)(x+5)$$

$$x^2 + 2x - 15 - 48 = 0$$

$$x^2 + 2x - 63 = 0$$

$$x^2 + 9x - 7x - 63 = 0$$

$$x(x+9) - 7(x+9) = 0$$

$$(x-7)(x+9) = 0$$

$$x = 7, -9$$

(j) $\frac{a}{ax-1} + \frac{b}{bx-1} = a+b$

$$\left(\frac{a}{ax-1} - b\right) + \left(\frac{b}{bx-1} - a\right) = 0$$

$$\left(\frac{a-abx+b}{ax-1}\right) + \left(\frac{b-abx+a}{bx-1}\right) = 0$$

$$(a+b-abx) \left[\frac{1}{ax-1} + \frac{1}{bx-1}\right] = 0$$

$$\Rightarrow \text{either } a+b-abx = 0$$

$$\text{or } \frac{1}{ax-1} + \frac{1}{bx-1} = 0$$

$$a+b-abx = 0, \frac{1}{ax-1} = -\frac{1}{bx-1}$$

$$\frac{x-a+b}{ab}$$

$$bx-1 = -ax+1$$

$$ax+bx = 1+1$$

$$x(a+b) = 2$$

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

(k) $\sqrt{3x+4} = x$

Squaring both sides

$$3x+4 = x^2$$

$$x^2 - 3x - 4 = 0$$

$$x^2 - 4x + x - 4 = 0$$

$$x(x-4) + 1(x-4) = 0$$

$$x = 4, -1$$

(l) $\sqrt{x(x-7)} = 3\sqrt{2}$

Squaring

$$x(x-7) = 9 \times 2$$

$$x^2 - 7x - 18 = 0$$

$$x^2 - 9x + 2x - 18 = 0$$

$$(x-9)(x+2) = 0$$

$$x = 9, -2$$

(m) $\sqrt{2}x^2 + 7x + 5\sqrt{2} = 0$

$$\sqrt{2}x^2 + 2x + 5x + 5\sqrt{2} = 0$$

$$\sqrt{2}x(x+\sqrt{2}) + 5(x+\sqrt{2}) = 0$$

$$(x+\sqrt{2})(\sqrt{2}x+5) = 0$$

$$x = -\sqrt{2}, -\frac{5}{\sqrt{2}}$$

(Q2) $5(3x+1)^2 + 6(3x+1) - 8 = 0$

Let $y = 3x+1$

$$5y^2 + 6y - 8 = 0$$

$$5y^2 + 10y - 4y - 8 = 0$$

$$5y(y+2) - 4(y+2) = 0$$

$$(y+2)(5y-4) = 0$$

$$y = -2, \frac{4}{5}$$

$$3x+1 = -2$$

$$3x = -3$$

$$x = -1$$

(Q3) $p+7=0 \Rightarrow p = -7$

$$q-12=0 \Rightarrow q = 12$$

$$3x+1 = \frac{4}{5}, 15x+5=4$$

$$15x = 4-5$$

$$15x = -1, x = -\frac{1}{15}$$

$$\therefore x^2 + px + q = 0$$

becomes

$$x^2 - 7x + 12 = 0$$

$$x^2 - 4x - 3x + 12 = 0$$

$$x(x-4) - 3(x-4) = 0$$

$$(x-3)(x-4) = 0$$

$$\therefore x = 3, 4$$



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MATHS:

Q4 Mean and Median
 9, 0, 2, 8, 5, 3, 5, 4, 1, 5, 2, 7
 Arranging 0, 1, 2, 2, 3, 4, 5, 5, 5, 7, 8, 9
 $n = 12$ (even)
 $\therefore \text{Median} = \left(\frac{n}{2}\right)^{\text{th}} \text{ta} + \left(\frac{n}{2} + 1\right)^{\text{th}} \text{ta}$
 $= \left(\frac{12}{2}\right)^{\text{th}} \text{ta} + \left(\frac{12}{2} + 1\right)^{\text{th}} \text{ta}$
 $= \frac{6^{\text{th}} \text{ta} + 7^{\text{th}} \text{ta}}{2} = \frac{4 + 5}{2} = 4.5$

Mean = $\frac{9+0+2+8+5+3+5+4+1+5+2+7}{12}$
 $= \frac{51}{12} = 4.25$

Q5
 11, 12, 14, (x-2), (x+4), (x+9), 32, 38, 47
 $n = 9$ (odd)
 $\text{Median} = \left(\frac{n+1}{2}\right)^{\text{th}} \text{ta} = \left(\frac{9+1}{2}\right)^{\text{th}} \text{ta} = 5^{\text{th}} \text{ta}$
 $24 = x + 4 \therefore x = 20$
 The numbers are now 11, 12, 14, 18, 24, 29, 32, 38, 47
 $\text{Mean} = \frac{11+12+14+18+24+29+32+38+47}{9}$
 $= \frac{225}{9} = 25.00$

Q6 $m = \frac{1+7+5+3+4+4}{6}$
 $= \frac{24}{6} = 4$
 $\therefore m = 4$

also $m-1 = \frac{3+2+4+2+3+3+p}{7}$
 $4-1 = \frac{17+p}{7}$
 $3 \times 7 = 17 + p$
 $p = 4 \dots (i) \text{ Ans}$

Median 3, 2, 4, 2, 3, 3, 4
 Arranging 2, 2, 3, 3, 3, 4, 4
 $n = 7$
 $\text{Median} = \left(\frac{n+1}{2}\right)^{\text{th}} \text{ta}$
 $q = \left(\frac{7+1}{2}\right)^{\text{th}} \text{ta} = 4^{\text{th}} \text{ta} = 3 \dots (ii) \text{ Ans}$
 $\therefore q = 3$
 Mean of 'p' and 'q'
 $\text{Mean} = \frac{4+3}{2} = 3.5$

