



## *Summer Valley School, Dehradun*

Address :18, TegBahadur Road, Dehradun (UK) e-mail: summervalleyschool@gmail.com Tel : 0135-2673383, 2678356

Class IX /Assignment 1

5 April 2020

### **ENGLISH LANGUAGE: ASSIGNMENT-1**

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

### **ASSIGNMENT-2**

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.



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### COMPUTER:

1. Learn programming generation languages. (Refer page no 2 and 3 of your text book – long answer)
2. Advantages and disadvantages of OOP( Page no 12 – long answer)
3. Characteristics of Java. (Page no. 21 – long answer)
4. Learn definitions of the following terms –
5.
  - a. **Paradigm**  
Paradigm means organizing principle of a program. It is an approach to programming.
  - b. **Abstraction**  
Abstraction refers to the act of representing essential features without including the background details or explanation.
  - c. **Inheritance**  
Inheritance is the capability of one class of things to inherit the capabilities or properties from another class.
  - d. **Polymorphism**  
Polymorphism is the ability for a message or data to be processed in more than one form.
  - e. **Object**  
An object is an identifiable entity with some characteristics a state and behavior.
  - f. **Class**  
A class is a blueprint of a set of objects that have a common structure and common behavior. It is a conceptual description while an object is actual instance of a class.
  - g. **Bytecode.**  
Bytecode is an intermediate code generated after the compilation of a Java program. Java applications are compiled once and does not produce object code, rather it produces bytecode. This bytecode makes the Java application platform – independent.



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### CHEMISTRY:

Q1

1. Valency .The number of hydrogen atoms which can combine with or displace one atom of the element or radical so as to form a compound.
2. Radicals .A radical is a group of atoms of elements that behaves like a single unit and shows a valency
3. Symbol.A symbol represents a short form of an element.
4. Chemical formula .A molecule of a substance i.e. element or compound could be represented by symbols.
5. Variable valency.Certain metals exhibit more than one valency hence showing variable valency.

Q2

Valency table given on page no 3 for learning.

Q3

Answer given on page no 5.

Q4

1. potassium hypochlorite.
2. Calcium phosphate
3. Carbonic acid.
4. Hydrochloric acid .
5. Nitric acid .
6. Sodium aluminate.
7. potassium Dichromate
8. potassium plumbite.
9. potassium permanganate.
10. Lead Nitrate

Q5

1.  $2\text{KNO}_3 \rightarrow 2\text{KNO}_2 + \text{O}_2$ .
2.  $\text{Ca} + 2\text{H}_2\text{O} \rightarrow \text{Ca(OH)}_2 + \text{H}_2$ .
3.  $\text{Fe} + 2\text{HCl} \rightarrow \text{FeCl}_2 + \text{H}_2$ .
4.  $4\text{NO}_2 + 2\text{H}_2\text{O} + \text{O}_2 \rightarrow 4\text{HNO}_3$ .
5.  $2\text{PbO}_2 \rightarrow 2\text{PbO} + \text{O}_2$ .
6.  $4\text{Al} + 3\text{O}_2 \rightarrow 2\text{Al}_2\text{O}_3$ .
7.  $2\text{Fe} + 3\text{Cl}_2 \rightarrow 2\text{FeCl}_3$ .
8.  $2\text{KBr} + \text{Cl}_2 \rightarrow 2\text{KCl} + \text{Br}_2$ .
9.  $2\text{KHCO}_3 \rightarrow \text{K}_2\text{CO}_3 + \text{H}_2\text{O} + \text{CO}_2$ .
10.  $\text{Ca(OH)}_2 + 2\text{NH}_4\text{Cl} \rightarrow \text{CaCl}_2 + 2\text{H}_2\text{O} + 2\text{NH}_3$ .

Q6

1.  $2\text{NaHCO}_3 + \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4 + 2\text{H}_2\text{O} + 2\text{CO}_2$ .
2.  $2\text{NaOH} + \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4 + 2\text{H}_2\text{O}$ .
3.  $\text{Pb(NO}_3)_2 + 2\text{NaCl} \rightarrow 2\text{NaNO}_3 + \text{PbCl}_2$ .
4.  $\text{FeSO}_4 + 2\text{NaOH} \rightarrow \text{Na}_2\text{SO}_4 + \text{Fe(OH)}_2$ .
5.  $\text{FeCl}_3 + 3\text{NaOH} \rightarrow 3\text{NaCl} + \text{Fe(OH)}_3$ .
6.  $\text{CuSO}_4 + 2\text{NaOH} \rightarrow \text{Na}_2\text{SO}_4 + \text{Cu(OH)}_2$ .
7.  $\text{FeCl}_3 + 3\text{NH}_4\text{OH} \rightarrow 3\text{NH}_4\text{Cl} + \text{Fe(OH)}_3$ .
8.  $\text{Zn} + 2\text{NaOH} \rightarrow \text{Na}_2\text{ZnO}_2 + \text{H}_2\text{O}$ .
9.  $\text{Pb(OH)}_2 + 2\text{NaOH} \rightarrow \text{Na}_2\text{PbO}_2 + 2\text{H}_2\text{O}$ .
10.  $\text{Al}_2\text{O}_3 + 2\text{H}_2\text{O} + 2\text{NaOH} \rightarrow 2\text{NaAlO}_2 + 3\text{H}_2\text{O}$ .



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### **BIOLOGY:**

1. Define (a) Health-It is the state of the body of a person who depicts physical, mental, social and emotional fitness. (b) Hygiene-Science and practice of maintaining good health. (c) Vectors-It is an agent that carries disease causing germs or pathogens. (d) Contamination-Unwanted entry of disease causing germs into drinking water or edible foods.

2. Give reasons for the following-

(a) We must wash our hands before eating food.

Our hands may have germs which may enter our body when we eat food.

(b) Daily bath is very important for our health.

It keeps the skin clean and free of germs, opens the sweat pores and removes the body odour.

(c) We must never share towels with others even in the same family.

It is to prevent spread of communicable diseases like eye infections, skin infections, chicken pox etc. The towel of a person might contain germs.

(d) Physical exercise should be systematic and regular. It improves blood circulation.

(e) Living rooms should be well ventilated.

It is to bring fresh air with oxygen and sunlight to kill germs.

(f) We must keep our food covered.

To prevent the houseflies to contaminate it by sitting on it.

3. Discuss different ways by which houseflies spread diseases.

(i) The hairy body and legs pick up the filth containing germs and contaminate our food by rubbing its legs thus dropping the particles of filth when it sits on it.

(ii) It moistens the food by its saliva or vomits on the food thus contaminating it.

(iii) It deposits its excreta while it feeds and thus contaminates food.

(iv) It directly transfers the germs from infected to healthy person. For eg-trachoma is spread when housefly sits on eye of infected person and then on the eye of healthy person.



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### **BIOLOGY:**

4. Discuss different ways to control the houseflies.

(i) Elimination of breeding places- all refuse from houses, human excreta should be removed regularly or refuse can be covered by layer of earth which kills maggots by producing enough heat.

(ii) Spraying of houses and breeding places with DDT and other insecticides.



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## PHYSICS:

### Solutions class 9<sup>th</sup> Practice Questions

#### Ch- Reflection of light

**Answer 1:-** (i). Speed of light in air =  $3 \times 10^8$  m/s.

(ii). Speed of light in water =  $2.25 \times 10^8$  m/s.

(iii). Speed of light in glass =  $2 \times 10^8$  m/s.

**Answer 2:-**

Rarer medium - A medium in which the speed of light is more as compared to the other medium is called a rarer medium.

Denser medium - A medium in which the speed of light is less as compared to the other medium is called a denser medium.

**Answer 3:-**

Refraction- the change in direction of path of light when it passes from one optically transparent medium to another is called refraction of light.

Reflection of light- the phenomenon in which light ray falls on a well polished, smooth surface such as a mirror and bounces back to the same medium is called reflection of light.

**Answer 4 -** The two laws of refraction (also called Snell's law of refraction) are:-

(i). The incident ray, the normal at the point of incidence and the refracted ray all lie in the same plane.

(ii). For a given pair of media and given colour of light, the ratio of sine of angle of incidence to the sine of angle of refraction  $r$  is a constant i.e.,

$$\sin i / \sin r = \text{constant.}$$

**Answer 5-** The two laws of reflection are:-

(i). The angle of incidence  $i$  is equal to the angle of reflection  $r$  i.e., angle  $i =$  angle  $r$ .

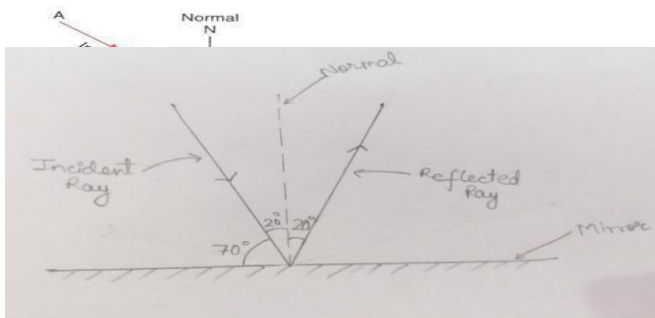
(ii). The incident ray, the reflected ray and the normal at the point of incidence, lie in the same plane.

**Answer 6:-** (i). Refraction

(ii). Reflection.

**Answer 7:-**

**Answer 8:-**





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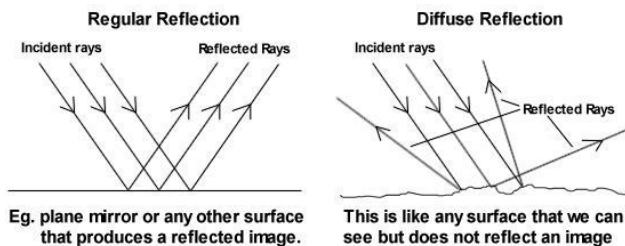
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## PHYSICS

**Answer 9:-** two type of reflection of light are (i).regular reflection (ii). irregular or diffused reflection.



Regular reflection:-The reflection in which a parallel beam of light falls on a smooth and polished surface such that the reflected beam is also parallel and in a fixed direction, is called regular reflection.

Irregular reflection :- reflection in which a parallel beam of light falls on a rough surface but the reflected beam is not parallel. Due to uneven surface , at different points, light ray get reflected in different directions and give rise to diffused or irregular reflection.

**Answer 10:-**

Real image	Virtual image
A real image is formed due to actual intersection of the reflected rays.	The virtual image is formed when the reflected rays meet if they are produced backwards.
Real image can be obtained on a screen.	A virtual image cannot be obtained on a screen.
A real image is inverted with respect to the object.	A virtual image is erect with respect to the object.

**Answer 11:-** The image formed by a plane mirror has the following characteristics

- (i).upright or erect
- (ii).virtual
- (iii). of the same size as the object
- (iv).laterally inverted
- (v). the image is situated at the same perpendicular distance behind the mirror as the object is in front of it.



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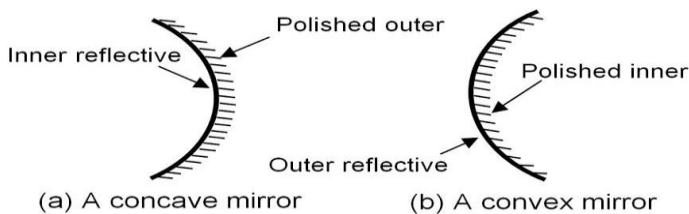
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### PHYSICS

**Answer 12:-** Spherical mirror- The Mirrors which are made by silvering the inner or the outer part of a hollow glass sphere are called a spherical mirror.

The two type of the spherical Mirrors are

- i). concave Mirrors and
- ii). convex Mirrors



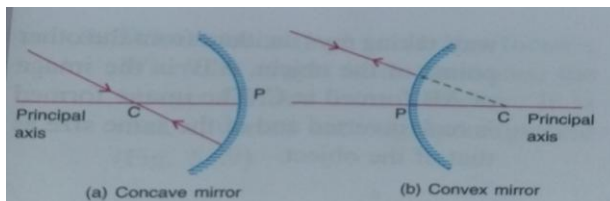
### Answer 13:-

- i) Centre of curvature- The centre of curvature of a mirror is the centre of the sphere of which the mirror is a part. It is represented by a symbol C.
- ii) Pole- the geometric centre of the spherical surface of the mirror is called the pole of the mirror.
- iii) Focus- The focus of a spherical mirror is a point on the principal axis at which the light rays incident parallel to the principal axis actually meet or appears to meet after reflection from the mirror.
- iv) Radius of curvature -The radius of curvature of a mirror is the radius of the sphere of which the mirror is a part. It is the distance of the centre of curvature C from any point on the surface of mirror and is represented by symbol R.
- v) Principal axis- It is a straight line joining the pole of the mirror to its centre of curvature. It is extended on either side of the pole.
- vi) Normal - The perpendicular drawn to the surface at the point of incidence is called the normal.

Comment [1]:

### Answer 14:-

- i) Ray passing through centre of curvature.







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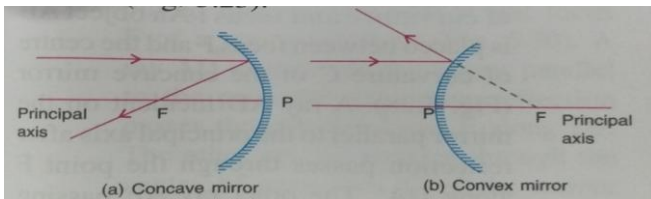
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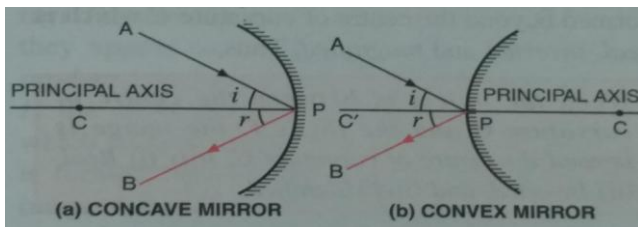
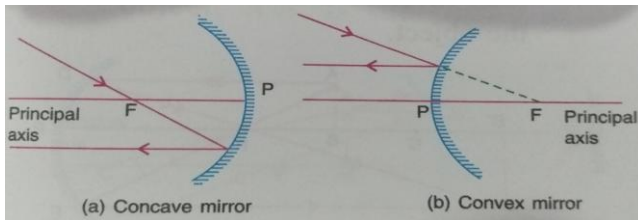
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## PHYSICS

- i) A ray parallel to principal Axis



- ii) Ray passing through focus



- iii) A ray incident at pole

**Answer 15:-**

Focal length =  $\frac{1}{2}$  × Radius of curvature

$$F = R/2$$



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## PHYSICS

### Answer 16:-

Two reasons for using convex mirror as a rear view mirror are:- i). convex mirror always forms a erect or upright image.

ii).Field of view of a convex mirror is wider than that of a plane mirror.

### Answer 17:-

Concave mirror	Convex mirror
It is made by silvering the outer surface of a part of a hollow sphere, so reflection takes place from the inner surface.	It is made by silvering the inner surface of a part of the hollow sphere, so reflection takes place from the bulging surface.
The light ray incident on it converge after reflection.	The light rays incident on it diverge after reflection.
The image formed by it is real as well as virtual. For all position of the object or beyond the focus, the image is real, while for position of the object between the focus and Pole the image is virtual.	The image formed by it is always virtual for all positions of the object in front of it.
The image formed by concave mirror is of all size i.e.,smaller, same and bigger as per position of object.	The image is always diminished for all positions of the object in front of it.

Position of the object	Position of the image	Nature and size of the image	Use
At infinity	At the focus	Real, inverted and diminished	As collector of radiation in solar heating devices
Beyond the centre of curvature	Between the focus and the centre of curvature	Real, inverted and diminished	
At the centre of curvature	At centre of curvature	Real, inverted and same size as object	As a reflecting mirror behind a projector lamp
Between the focus and centre of curvature	Beyond the centre of curvature	Real, inverted and magnified	In flood lights
At focus	At infinity	Real, inverted and magnified	As a reflecting mirror in car, head lights, search lights etc.
Between the pole of the mirror and the focus	Appears behind the mirror	Virtual, erect and magnified	As a shaving mirror or makeup mirror and dentist's mirror



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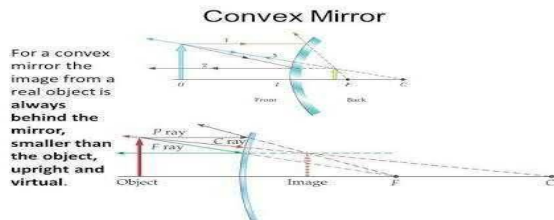
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### PHYSICS

**Answer 19:-**



**Answer 20:-**  $1/f = 1/u + 1/v$

Where ,  $f$ = focal length of spherical mirror,

$u$  = position of object,

$v$  = position of image.



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## MATHS:

*Erklärung*  
Substitution  
 Q1 (a)  $(x+2y)^2 = (x)^2 + (2y)^2 + 2 \times 2y \times x = x^2 + 4y^2 + 4xy$   
 (b)  $(4a-b)^2 = (4a)^2 + (b)^2 - 2 \times 4a \times b = 16a^2 + b^2 - 8ab$   
 (c)  $(3x+5y)^2 = (3x)^2 + (5y)^2 + 2 \times 3x \times 5y = 9x^2 + 25y^2 + 30xy$   
 (d)  $(2x-3y)^2 = (2x)^2 + (3y)^2 - 2 \times 2x \times 3y = 4x^2 + 9y^2 - 12xy$   
 (e)  $(x+\frac{1}{x})^2 = (x)^2 + (\frac{1}{x})^2 + 2 \times x \times \frac{1}{x} = x^2 + \frac{1}{x^2} + 2$   
 (f)  $(x-\frac{1}{x})^2 = (x)^2 + (\frac{1}{x})^2 - 2 \times x \times \frac{1}{x} = x^2 + \frac{1}{x^2} - 2$   
 (g)  $(a+\frac{1}{2a})^2 = (a)^2 + (\frac{1}{2a})^2 + 2 \times a \times \frac{1}{2a} = a^2 + \frac{1}{4a^2} + 1$   
 (h)  $(2a-\frac{1}{4a})^2 = (2a)^2 + (\frac{1}{4a})^2 - 2 \times 2a \times \frac{1}{4a} = 4a^2 + \frac{1}{16a^2} - 1$   
 (i)  $(x^2-\frac{1}{x^2})^2 = (x^2)^2 + (\frac{1}{x^2})^2 - 2 \times x^2 \times \frac{1}{x^2} = x^4 + \frac{1}{x^4} - 2$   
 (j)  $(x^3+\frac{1}{x^3})^2 = (x^3)^2 + (\frac{1}{x^3})^2 + 2 \times x^3 \times \frac{1}{x^3} = x^6 + \frac{1}{x^6} + 2$   
 (k)  $(x^2+\frac{1}{x})^2 = (x^2)^2 + (\frac{1}{x})^2 + 2 \times x^2 \times \frac{1}{x} = x^4 + \frac{1}{x^2} + 2x$   
 (l)  $(x-\frac{2}{x^2})^2 = (x)^2 + (\frac{2}{x^2})^2 - 2 \times x \times \frac{2}{x^2} = x^2 + \frac{4}{x^4} - \frac{4}{x}$

Q2  $(x+y)^2 = x^2 + y^2 + 2xy$   
 $(10)^2 = x^2 + y^2 + 2 \times 21$        $100 - 42 = x^2 + y^2$   
 $x^2 + y^2 = 58$

Q3  $(3x-4y)^2 = (3x)^2 + (4y)^2 - 2 \times 3x \times 4y = 9x^2 + 16y^2 - 24xy$   
 $(16)^2 = 9x^2 + 16y^2 - 24 \times 4$        $256 = 9x^2 + 16y^2 - 96$   
 $\therefore 9x^2 + 16y^2 = 256 + 96 = 352$

Q4  $(x+\frac{1}{x})^2 = x^2 + \frac{1}{x^2} + 2$   
 $(3)^2 = x^2 + \frac{1}{x^2} + 2$        $\therefore x^2 + \frac{1}{x^2} = 9 - 2, x^2 + \frac{1}{x^2} = 7$

Q5 (i)  $(a+b)^2 = a^2 + b^2 + 2ab$   
 $= 13 + 2 \times 6$   
 $= 13 + 12$   
 $= 25$   
 $\therefore a+b = \sqrt{25} = \pm 5$

(ii)  $(a-b)^2 = a^2 + b^2 - 2ab$   
 $= 13 - 2 \times 6$   
 $= 13 - 12$   
 $= 1$   
 $\therefore a-b = \sqrt{1} = \pm 1$



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## MATHS:

Factorisation

Q6

(i)  $8xy^3 + 12x^2y^2$   
 $4xy^2(2y + 3x)$

(ii)  $18m + 16n$   
 $2(9m + 8n)$

(iii)  $18p^2q^2 - 24pq^2 + 30p^2q$   
 $6pq(3pq - 4q + 5p)$

Q7

(i)  $x^2 + xy - x - y$   
 $x(x+y) - 1(x+y)$   
 $(x-1)(x+y)$

(ii)  $x^2 - 3x^2 + x - 3$   
 $x^2(x-3) + 1(x-3)$   
 $(x^2+1)(x-3)$

(iii)  $2a - 4b - xa + 2bx$   
 $2(a-2b) - x(a-2b)$   
 $(2-x)(a-2b)$

Q8

(i)  $4x^2 - 169y^2$   
 $(2x)^2 - (13y)^2 = (2x+13y)(2x-13y)$

(ii)  $150 - 6a^2$   
 $6(25 - a^2)$   
 $6[(5)^2 - (a)^2]$   
 $= 6(5+a)(5-a)$

(iii)  $32x^2 - 18y^2$   
 $2(16x^2 - 9y^2)$   
 $2[(4x)^2 - (3y)^2]$   
 $2(4x+3y)(4x-3y)$

Q9

(i)  $x^2 + 5x + 6$   
 $x^2 + 3x + 2x + 6$   
 $x(x+3) + 2(x+3)$   
 $(x+3)(x+2)$

(ii)  $a^2 - 3a - 54$   
 $a^2 - 9a + 6a - 54$   
 $a(a-9) + 6(a-9)$   
 $(a+6)(a-9)$

(iii)  $2x^2 + x - 45$   
 $2x^2 + 10x - 9x - 45$   
 $2x(x+5) - 9(x+5)$   
 $(2x-9)(x+5)$



