



**FACULTY HIGHER SECONDARY SCHOOL**  
**SAMPLE PAPER 2019-20**  
**CLASS – X**  
**SUB- SCIENCE**  
**FULL MARKS -50**

**A. Choose the most appropriate answer: (1x15=15)**

1. Generally ,metallic oxides are basic and non metallic oxides are acidic in nature . Solution of which of the following oxides in water will change the colour of blue litmus:

- (a) Sulphur dioxide (b) copper oxide (c) magnesium oxide (d) iron oxide

2. Magnification of an image is = -2. It implies that the image is :

- (a)magnified, virtual and erect (b) diminished real and inverted  
 (c) magnified , real and inverted (d) diminished , virtual and erect

3. The spherical mirror and the spherical lens with negative focal length are:

- (a) concave mirror and concave lens  
 (b) convex mirror and concave mirror  
 (c)concave lens and concave mirror  
 (d) convex mirror and convex lens

4. Power of a convex lens is :

- (a) always negative (b) always positive  
 (c) depends upon the object distance (d) depends upon the focal length

5. Change in colour in the phenolphthalein indicator when  $\text{CH}_3\text{COOH}$  is added to it :

- (a) remains colourless (b) changes red  
 (c) changes pink (d) changes yellow

6.  $\text{Na}_2\text{SO}_4 + \text{BaCl}_2 \rightarrow \text{BaSO}_4 + 2\text{NaCl}$ .

The above chemical equation is an example of :

- (a) displacement reaction (b) double displacement reaction  
 (c) oxidation reaction (d) decomposition reaction

7.  $3\text{MnO}_2 + 4\text{Al} \rightarrow 3\text{Mn} + 2\text{Al}_2\text{O}_3$

The reducing agent in the above chemical equation is :

- (a) manganese oxide (b) aluminium oxide  
 (c) aluminium (d) manganese

8. A solution turns blue litmus red , its pH is likely to be

- (a) 1 (b) 10 (c) 8 (d) 7

9. The speed of light in a transparent medium is 0.6 times that of its speed in vacuum. Its refractive index will be:

- (a) 0.6 (b) 1 (c) 1.66 (d) 1.36

10. When does an object and its image coincide in a convergent mirror :

- (a) when the object is at  $2F$  (b) when the object is at  $C$   
 (c) when the object is between  $F$  &  $C$  (d) when the object is at  $F$

11. Antibodies are produced by-

- a) Monocyte                      c) Lymphocyte  
b) Eosinophil                      d) neutrophil

12. Stomatal pore is guarded by –

- a) Epidermal cell                      c) Parenchyma  
b) Subsidiary cell                      d) Guard cell

13. Select the gland which is not associated with digestive system

- a) Pancreas                      c) Liver  
b) Thymus                      d) Salivary

14. Sphygmomanometer measures-

- a) Diffusion Pressure                      c) Turgor Pressure  
b) Air Pressure                      d) Blood Pressure

15. For any experiment related to photosynthesis leaves need to be boiled in-

- a) Alcohol                      c) Water  
b) Liquid Nitrogen                      d) Distilled Water

**B. Answer the following questions :**

1. A convex lens of focal length 25cm and a concave lens of focal length 10cm are placed in close contact with each other. Calculate the lens power of this combination. (2)

**Ans :-  $F_1 = 25\text{cm} = 0.25\text{m}$**

**Therefore, Power  $_1 = 1/F_1 = 1/0.25 = 4\text{ D}$**

**$F_2 = 10\text{cm} = 0.10\text{m}$**

**Therefore, Power  $_2 = 1/F_2 = 1/0.10 = 10\text{ D}$**

**Lens power of this combination =  $4 + 10 = 14\text{ D}$**

2. Whether respiration process is endothermic or exothermic? Give reason to support your answer. (2)
3. The soil in a field is highly acidic. List any two materials which can be added to this soil to reduce its acidity. Give the reason for your choice. (2)
4. Why digestion is considered to be extracellular? (2)
5. Differentiate between systolic pressure and diastolic pressure. (2)
6. (i) Define Snell's Law. (3)
- (ii) Draw the ray diagram showing refraction of light through a glass slab.
7. Write balanced chemical equation for the following reactions : (3)
- (a) Thermal decomposition .
- (b) Photochemical decomposition .
- (c) Electrical decomposition
8. Name the products formed in each case when :- (3)
- (a) Hydrochloric acid reacts with caustic soda.
- (b) Granulated zinc reacts with caustic soda.
- (c) Carbon dioxide is passed into lime water.

Ans:

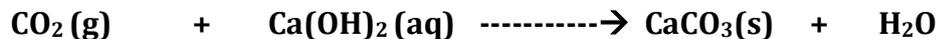
(a) Sodium chloride and water are formed.



(b) Sodium zincate and hydrogen gas are formed.



(c) Calcium carbonate and water are formed.



9. What is translocation ? How is made possible in huge trees? (3)

10. Explain glomerular ultrafiltration in kidney. (3)

11. A student wants to project the image of a candle flame on a screen 80cm in front of a mirror by keeping the candle flame at a distance of 20cm from its pole.

- (i) Which type of mirror should the student use?
- (ii) Find the magnification of the image produced.
- (iii) Find the distance between the object and its image.
- (iv) Draw a ray diagram to show the image formation in this case and mark the distance between the object and its image. (5)

Ans : (i) Concave mirror

(ii) Magnification ,  $m = -\frac{v}{u} = -\frac{-80}{-20} = -4$

(iii) Distance between object and its image =  $80 - 20 = 60\text{cm}$

(iv) Focal length of the concave mirror is given by :

$$\frac{1}{f} = \frac{1}{v} + \frac{1}{u}$$

$$= \frac{1}{-80} + \frac{1}{-20} = -\frac{5}{80} = -\frac{1}{16}$$

Therefore ,  $f = 16\text{ cm}$  ,  $R = 2f = 32\text{ cm}$ .

Since  $u = -20\text{cm}$  , it implies that the object lies between F & C .

(v) Ray Diagram-

12. Explain the structure of the Human Heart with the help of neat and labeled diagram.(5)