

**MP BOARD CLASS 10 ENGLISH MEDIUM**  
**SAMPLE PAPERS SERIES**  
**CLASS 10 SCIENCE MODEL PAPER 1**  
**SECTION-A**

Q.1. Choose the correct answer:

1. Chemically rust is  
(a) Hydrated ferrous oxide (b) Only ferric oxide (c) Hydrated ferric oxide (d) None of these
2. Which of the following has maximum nonmetallic character?  
(a) F (b) Br (c) Cl (d) I
3. Transfer of chemical's information from one neuron to another is facilitated by  
(a) Synapse (b) Nerve ending (c) Axon (d) Cell body
4. Which of the following materials cannot be used to make a lens?  
(a) Water (b) Glass (c) Plastic (d) Clay
5. Ganga Action Plan come about in  
(a) 1985 (b) 1998 (c) 1978 (d) 1973

Q.2. Fill in the blanks:

- (i) All acids produce.....ions in water.
- (ii) Life on earth depends on.....based molecule.
- (iii) .....Co-ordination is seen in both plants and animals.
- (iv) Von Baer is called the father of.....
- (v) ..... is delicate membrane having:

Q.3. Match the columns:

- |                                  |                      |
|----------------------------------|----------------------|
| (A)                              | (B)                  |
| (i) Acetic Acid                  | (a) Pitcher plant    |
| (ii) Insectivorous plants        | (b) Ampere           |
| (iii) Wings of bat birds         | (c) Vinegar          |
| (iv) SI unit of electric current | (d) Bacteria         |
| (v) Decomposer                   | (e) Analogous organs |

Q.4. Answer in one word /one sentence: 5

- (i) Name two metals which are found in nature in free state.
- (ii) Which type of nutrients method is found in sandal?
- (iii) Which colour has maximum wavelength?
- (iv) For three resistors what will be not voltage?
- (v). Which factors of hole in ozone layer?

**SECTION-B**

Q.5. What is the colour of ferrous sulphate before and after heating?

**OR** What is precipitation reaction? Explain with examples.

Q.6. Why do you think noble gases are placed in a separate group?

**OR** How could you modern periodic table remove various anomalies of Mendeleev's Periodic Table.

Q.7. How is the process of pollination different from fertilization?

**OR** What does the male reproductive system consist of in human beings?

Q.8. Why are the small numbers of surviving tiger cause of worry from the point of view of genetic?

**OR** What is classification?

Q.9. What happened when convex lens focus at paper in sunlight?

**OR** Why do we prefer a convex mirror as a rearview mirror in vehicles?

Q.10. Describe oxidation and reduction in terms of gain or loss of oxygen with two examples. 3.

**OR** Why is photosynthesis considered as endothermic reaction?

Q.11. Why is normal eye not able to see clearly the object placed closer than 25cm? S3

**OR** State the function of each of the following parts of the human eye.

(i) Cornea, (ii) Iris, (iii) Pupil, (iv) Retina.

Q.12. Write a short note on galvanometer. 3

**OR** How does a solenoid behave like a magnet? Can you determine the north and south poles of a current-carrying solenoid with the help of a bar magnet.

Q.13. In what ways can be magnitude of the induced current be increased?

**OR** What precautions should be taken to avoid the overloading of domestic electrical circuit?

Q.14. Why are we looking at alternate sources of energy?

**OR** Why is charcoal considered a better fuel than wood? What are the disadvantages of converting wood into charcoal?

Q.15. Give the properties and uses of bleaching powder

**OR** Give one example for each of the following salts chloride salts, carbonate salts and sulphate salts.

Q.16. What is an homologous series? Explain with an example.

**OR** Explain the mechanism of cleaning action of soaps.

Q.17. How is the amount of urine produced regulated?

**OR** Compare the functioning of alveoli in the lungs and nephrons in the kidneys with respect to their structure and functioning.

Q.18. What is the function of receptors in our body? Think of situations where receptors do not work properly. What problems are likely to arise?

**OR** What are tropic movements?

Q.19. Give difference between conductors and insulators.

**OR** Several electric bulb designed to be used on a 220 V Electric Supply Line, are rated 10 W. How many names can be connected in parallel to each other across the two wires of 220 V line if the maximum available current is 5 A?

Q.20. Name two metals which will displace hydrogen from dilute acids and two metals which will not

**OR** Give reasons:

(a) Platinum, Gold and Silver are used to make Jewelry.

(b) Sodium, potassium and lithium are stored under oil.

(c) Aluminum is highly reactive metal, yet it is used to make utensils for cooking.

(d) Carbonate and sulphate ores are usually converted into oxide during the process of extraction.

Q.21. Draw labeled diagram of the longitudinal section of flower?

**OR** What are the different methods of contraception?

Q.22. An object is placed at a distance of 10 cm from a convex mirror of a focal length of 15 cm. Find the position and nature of the image.

**OR** What do you understand by the law of refraction.

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SAMPLE PAPERS SERIES  
CLASS 10 SCIENCE MODEL PAPER 1 ANSWER  
SECTION-A**

SECTION-A

Ans.1.: 1-(c), 2-(b), 3-(c), 4-(d), 5-(a).

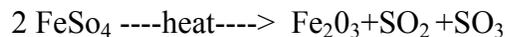
Ans.2. (i) H<sup>+</sup> (ii) Carbon, (iii) Chemical, (iv) Embryology, (v) The retina.

Ans.3. i-(c), ii-(a), iii-(e), iv-(b), v-(d)

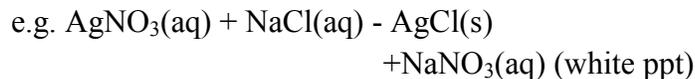
Ans.4.(i) Gold and Silver, (ii) Parasitic, (iii) Red, (iv)  $V=V_1+V_2+V_3$  (v) Aerosol.

SECTION-B

Ans.5. We observe, the colour of ferrous sulphate crystals is green before heating and it becomes colourless after heating.



OR: When reactants react to form an insoluble compound that is precipitate are called precipitation reactions.



Ans.6. Noble gases are placed in a separate group because Noble gases are inactive do not resemble other elements and all of them show same properties.

OR: Modern periodic table remove various anomalies of Mendeleev's Periodic Table because Modern Periodic Table is based on the atomic number of elements, therefore

(i) Problem of isotopes was solved because isotopes have same atomic number.

(ii) Wrong order of Ar, K, CO, Ni was removed.

Ans.7. With the help of insects, birds, wind or water, the transfer of pollen grains from the anther of a stamen to the stigma of a carpel is called pollination. The fusion of a female gamete (sperm) with a female gamete (ovary) to form a zygote by sexual reproduction is called fertilization. So both processes are different from each other.

Ans. 7. OR: The male reproductive system in human beings consist of testes which produce sperms, vas deferens, seminal vesicles, prostate gland, urethra and penis.

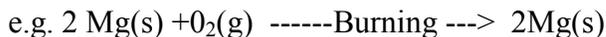
Ans.8. We have to worry about this because if these tigers extinct then the genes of this species is lost and we can't get the genes of this species. The chance to get again this species back to life ends without their genes.

OR: The arrangement of organisms into series of groups based on the similarity of characters on physiology, anatomy, morphology and other relationship is called classification.

Ans.9. The paper burnt because the lens focused the sunrays at a point. Sunrays have energy. OR: A convex mirror is used as a rear-view mirror in vehicles because convex mirror can cover a wider range

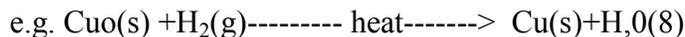
and give erect and diminished image. Hence, convex mirror is used as a rearview mirror to get wider field of view.

Ans.10. (a) Oxidation: Gain of oxygen takes place or loss of hydrogen takes place.



Mg is oxidized to MgO

(b) Reduction: Loss of oxygen takes place or gain of hydrogen takes place.



CuO is reduced to form Cu.

OR:

Ans. Photosynthesis is considered as endothermic reaction because energy is required to form glucose from carbon dioxide and water. Energy in the form of sunlight is also required to break the bonds of hydrogen and oxygen. Hence it is termed as endothermic reaction

Ans.11. The normal eye is not able to see clearly the objects placed closer than 25 cm because Ciliary muscles can contract the lens of human eye to a certain limit because of which a person with normal vision can see the nearby objects clearly only if placed at 25 cm but if the objects are placed closer to the eye than it cannot see the objects clearly.

OR: (i) Cornea (ii) Iris (iii) Pupil (iv) Retina

Ans.(i) Cornea: Refraction of the light rays falling on the eye.

(ii) Iris: To control the size of the pupil.

(iii) Pupil: To regulate and control the amount of light entering the eye.

(iv) Retina: To act as a screen to obtain the image of object and generate electrical signals which are sent to the brain via optic nerves.

Ans:12. It is an instrument that can detect the presence of current in circuit. The pointer remains at zero for zero current flowing through it. It can deflect either to the left or to the right of the zero mark depending on the direction of current

OR:

A solenoid is a coil of many circular turns of insulated copper wire wrapped closely in the shape of a cylinder. One end of the solenoid behaves as a magnetic north pole, while the other end behaves as the south pole. The field lines inside the solenoid are in the form of parallel straight lines. By taking a bar-magnet with known north poles near one end of the solenoid and if it shows repulsion then that end of solenoid is north pole and the other end is south pole: The property of magnet i.e., like poles repel and unlike poles attract is used for the determination of poles of solenoid

Ans:13. Magnitude of the induced current can be increased by:

(i) increasing the number of coils of the wire.

(ii) by increasing the power of magnet.

OR: To avoid overloading following precautions should be taken:

(i) Two separate circuits should be used one of 5A current and other 15A.

- (ii) For both 5A and 15A circuits, fuse should be installed.
- (iii) Parallel circuits should be used.
- (iv) Never use too many electrical appliances at one point.

Ans.14. We are looking at alternate sources of energy because:

- (i) The fossil reserves in the earth are limited which may get exhausted soon if continued to be used at the current rate.
- (ii) The use of alternate sources of energy will reduce the pressure on fossil fuels making them last for a much longer time.
- (iii) The pollution being caused by the burning of fossil fuels can be avoided by using alternate sources of energy. OR: Charcoal is considered a better fuel than wood because:
  - (i) It has high calorific value.
  - (ii) It does not produce any smoke. Disadvantages:
    - (i) 1 kg of wood on destructive distillation produces only 0.25 kg of charcoal making it an expensive fuel.
    - (ii) For production of charcoal, more and more trees would have to be cut down which causes deforestation and disturbs the ecological balance of the earth.

Ans.15. Properties: Oxidising agent Uses:

- (i) Oxidising agent: Used in chemical industries.
- (ii) Bleaching: Used in bleaching cotton, wood pulp, clothes.
- (iii) Disinfectant: To kill germs in drinking water.

OR:

Chloride salts ----- > Magnesium chloride, Calcium chloride  
 Carbonate salts-- > Sodium carbonate, Potassium carbonate  
 Sulphate salts ----> Calcium sulphate, Magnesium sulphate

Ans.16. Homologous series is a group of members of same class of organic compound having similar chemical properties, and they also have same general formula. Also have same functional group. When arranged in the ascending order of molecular mass they differ by 14 a.m.u. or  $\text{CH}_2$  group.

Example: Alkane

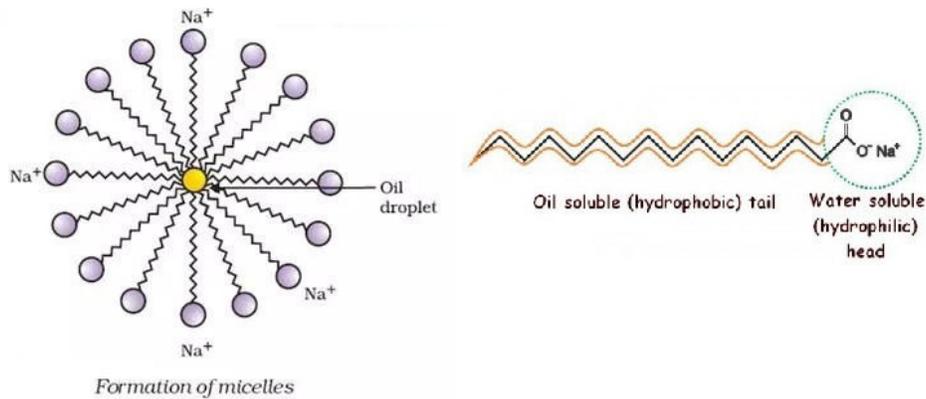
general formula-  $\text{C}_n\text{H}_{2n+2}$   
 Methane  $\text{CH}_4$   
 Ethane -  $\text{C}_2\text{H}_6$   $\text{CH}_2$   
 Propane  $\text{C}_3\text{H}_8$   
 Butane  $\text{C}_4\text{H}_{10}$

OR:

The molecule of soap has two ends, the charged end that gets attracted towards water is called hydrophilic and the long carbon chain that repels water is called hydrophobic tail. :

When soap is dissolved in water, the carbon chain i.e., hydrophobic end gets attracted towards the oil, dirt and grease. The hydrophilic end stays away from this. The micelle formation takes place. The tail entangles dirt, oil or grease, if required, the agitation is done. Lathering is done with water so that water

molecules attract charged ( $\text{Na}^+$ ) end and carries the soap molecules with dirt attached to it and clean the clothes, utensils, etc.



Ans.17. The amount of urine largely depends on the amount of water reabsorbed. When there is a hot day, we sweat and lose a lot of body water and salts, most of the water and salts in kidney will be reabsorbed into blood from the filtrate in the tubule. Thus the volume of urine produced will be less. When we do not sweat a lot in winters, a little water and salts will be reabsorbed and the volume of urine produced will be more.

Thus, there is perfect osmoregulation in the body

OR:

	Alveoli	Nephron
1.	The structural and functional unit of lungs is called Alveoli.	The structural and functional unit of kidneys is called Nephron.
2.	Thin walled, has a large surface area and is richly supplied with blood vessels.	Thin walled has a large surface area & is richly supplied with blood vessels.
3.	Removes carbon dioxide from the blood	Removes nitrogenous wastes from the blood.

Ans.18. The main function of receptors is to detect information from the environment. These receptors are located in our sense organs. There are some situations where receptors do not work properly, like mouth starts watering when we feel hungry, touching a flame, knee-jerk, etc.

In these situations, they take enough time if these are done by the brain. To solve these problems, the nerves move muscles in a simpler way. This is done by the spinal cord.

OR: Tropic movements are directional movement which are either towards the stimuli or away from it.

(i) Phototropism, Geotropism, Hydrotropism, Chemotropism.

(ii) Phototropism: Movement is in response to light: stem positive, root negative.

(iii) Geotropism: Movement is in response to gravity: stem negative, root positive.

(iv) Hydrotropism: Movement in response to water: stem negative, root positive.

(v) Chemotropism: Growth of pollen tubes towards ovules.

Ans.19.

	Conductors	Insulators
1	The materials that allow electricity to pass through are called conductors of electricity	Materials that do not allow electricity to pass through them
2	Materials have loosely bound free electrons.	Materials do not have loosely bound free electrons.
3	Example, metals and graphite (non-metal).	Example, non metals, rubber, plastic etc.

Ans. 19.OR

$$P=10W \quad V=220V$$

$$I = ?$$

$$\text{Using, } I = P / V$$

$$=10/220 \quad =1/22 \text{ A}$$

If a number of bulbs connected to current of 5 A is n, then,

$$(1/22)n=5$$

$$N=5 \times 22 =110$$

Therefore, 110 bulbs can be attached.

Ans.20. The Metals which lie above Hydrogen in the activity series i.e. Zn, Al, Mg can displace hydrogen from dilute acids, because they are more reactive than H, Metals which lie below hydrogen in the activity series i.e. Cu, Ag, Au cannot displace hydrogen from dilute acids, because they are less reactive than hydrogen.

OR:

(a) Pt, Au and Ag are highly malleable, lustrous and ductile, so they are used in making jewelry.

(b) K, Na and Li are highly reactive metals, they react with oxygen present in air at room temperature and catch fire in presence of moisture. They don't react with oil (Kerosene) hence stored in oil.

(c) To protect from corrosion, Aluminum forms a protective layer of Aluminum oxide ( $Al_2O_3$ ) on its surface.

(d) Reduction of metal oxides to metal is cheaper and easier than the reduction of carbonate and sulphide ores. So carbonate and sulphide ores are first converted to metal oxide and then further reduced to form metals.

Ans.21.

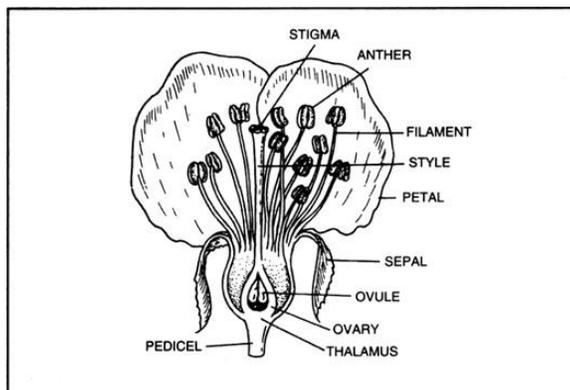


Fig. - L.S. of Flower

OR:

The method to avoid pregnancy is called contraception the method of contraception are a follows:

(1) Surgical methods: This includes vasectomy (sperm duct is removed) in male and tubectomy (removal of small portion of fallopian tube) in females. (2) Chemicals methods: Oral pills change the hormonal balance and stop release of egg. Vaginal pills kill the sperms.. (3) Physical barrier methods: Condoms, diaphragms cervical caps can be used, these prevents the entry of sperms into the female genital tract by acting as a barrier between them.

Ans.22.

Convex mirror

$$\begin{aligned} 1/f &= 1/v + 1/u \\ 1/15 &= 1/v + 1/-10 \\ 1/v &= 1/15 + 1/10 \\ 1/v &= 5/30 + 3/30 \\ &= 8/30 \\ &= +6 \text{ cm} \end{aligned}$$

The image is formed 6 cm. behind the mirror, virtual image is formed.

OR: The law of refraction are as follows:

1. The incident ray, the refracted ray and the normal at the point of incidence lie in the same plane.
2. For a particular wavelength (or color) of light the ratio of sine of the angle of incidence to the sine of angle of refraction is constant for a given pair of medium. This law is also called snell's law. If angle of incidence is  $i$  and angle of refraction is  $r$  then,

$$\sin i / \sin r = \text{Constant } t \text{ (snell's law)}$$

This constant value is called the refractive index of the second medium with respect to the first.