

# BOARD QUESTION PAPER : MARCH 2017

## SCIENCE

Time: 2 Hours

Total Marks: 40

**Note:**

- i. Draw well-labelled diagrams wherever necessary.
- ii. All questions are compulsory.
- iii. Students should write the answers of questions in sequence.

### SECTION A

**Q.1. (A) (a) Find the odd man out:** [2]

- i. Camphor, Ammonium Chloride, Naphthalene balls, Sugar
- ii. Turmeric, Methyl Orange, Rose petals, Beetroot.

**(b) Match the following:** [2]

	Column I		Column II
i.	Myopia	(A)	Converging power of eye lens becomes low
ii.	Hypermetropia	(B)	Converging power of eye lens remains the same
		(C)	Converging power of eye lens becomes high

**(c) Fill in the blank:** [1]

To increase the effective resistance in a circuit the resistors are connected in \_\_\_\_\_.

**(B) Rewrite the following statements by selecting the correct options:** [5]

- i.  $\text{CaCO}_3 \xrightarrow{\Delta} \text{CaO} + \text{CO}_2\uparrow$  is a \_\_\_\_\_ reaction.  
(A) combination (B) displacement  
(C) double displacement (D) decomposition
- ii. The colour of universal indicator solution is \_\_\_\_\_.  
(A) red (B) blue  
(C) green (D) greenish yellow
- iii. The height of the image formed by an object of height 10 cm placed in front of a plane mirror is \_\_\_\_\_.  
(A) 5 cm (B) 10 cm  
(C) 15 cm (D) 20 cm
- iv. When the resistance of a conductor increases, the current will \_\_\_\_\_.  
(A) increase (B) decrease  
(C) remain the same (D) become double
- v. Lime water turns milky when \_\_\_\_\_ gas is passed through it.  
(A)  $\text{H}_2$  (B) CO  
(C)  $\text{CO}_2$  (D)  $\text{SO}_2$

**2. Answer any five of the following:** [10]

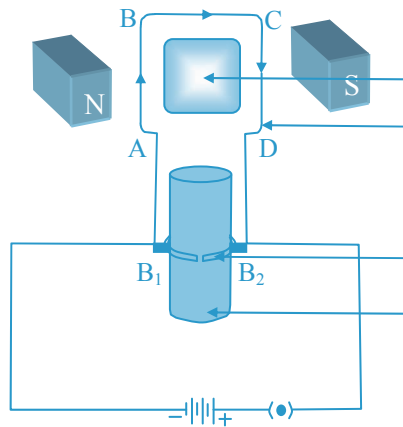
- i. State any two applications of baking soda.
- ii. Define magnetic lines of force and state its two properties.
- iii. Differentiate between Normal elements and Transition elements.
- iv. Classify the given sources of water pollution as natural and man made:
  - a. domestic waste
  - b. dead animals
  - c. oil spills
  - d. ashes released due to forest fires.
- v. An object is held 20 cm away from a converging lens of focal length 10 cm. Find the position of the image formed.
- vi. Define scattering of light.

3. Solve any five of the following questions:

- i. Define corrosion. What is meant by rust? Write the chemical formula of rust.
- ii. Complete the following table:

Instrument	Number of Convex Lenses	Use
Simple Microscope	_____	_____
Compound Microscope	_____	_____
Telescope	_____	_____

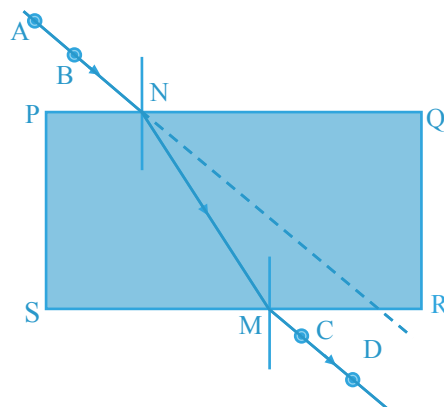
- iii. What do you do in the following situations:
  - a. Exposed to exhaust fumes in traffic.
  - b. Exposed to a series of fire crackers with high sound level.
  - c. Get turbid drinking water during monsoon.
- iv. Label the four parts of electric motor and write two uses of DC motor.



- v. State any three demerits of Mendeleev's periodic table.
- vi. Draw the electrical symbols of the following components and state its use:
  - a. Wire crossing
  - b. Rheostat (variable resistance)
  - c. Ammeter.

4. Answer any one of the following questions:

- i. Observe the following figure and answer the questions given under it:
  - a. How many times does refraction take place in the above figure?
  - b. What happens to the ray of light when it passes from air to glass?
  - c. What happens to the ray of light when it passes from glass to air?
  - d. What are the rays AB and CD in the figure called?
  - e. Define refraction.



- ii.
  - a. Find the expression for resistivity of a material and state the SI unit of resistivity.
  - b. Observe the following figure: (3)



If the current in the coil A is changed, will some current be induced in the coil B? Explain. (2)

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### SECTION B

1. (A) Answer the following sub-questions:

(a) Fill in the blanks and rewrite the completed statements: [2]

- i. Nervous system is absent in \_\_\_\_\_
- ii. Both the parents contribute equal amount of \_\_\_\_\_ material to the offspring.

(b) State whether the following statements are true or false: [2]

- i. The general formula of alkanes is  $C_nH_{2n+2}$
- ii. Carbohydrates are body building nutrients.

(c) Considering the relationship in the first pair, complete the second pair: [1]

Root: Vegetative propagation:: Flower : \_\_\_\_\_

(B) Rewrite the following statements by selecting the proper options: [5]

- i. The exchange of respiratory gases in the cells of plants occurs by the process of \_\_\_\_\_  
(A) osmosis (B) diffusion  
(C) glycolysis (D) exhalation
- ii. A solution of \_\_\_\_\_ in water is green in colour.  
(A)  $CuSO_4$  (B)  $FeSO_4$   
(C)  $ZnSO_4$  (D)  $Al_2(SO_4)_3$
- iii. \_\_\_\_\_ type of reproduction takes place in Hydra.  
(A) Budding (B) Binary fission  
(C) Multiple fission (D) None of the above
- iv. The process of absorption of water into raisins occurs through its membranes. This process is known as \_\_\_\_\_  
(A) Absorption (B) Osmosis  
(C) Adsorption (D) Diffusion
- v. When zinc powder is added to acetic acid \_\_\_\_\_  
(A) the mixture becomes warm (B) a gas is evolved  
(C) the colour of the mixture becomes yellow (D) a solid settles at the bottom

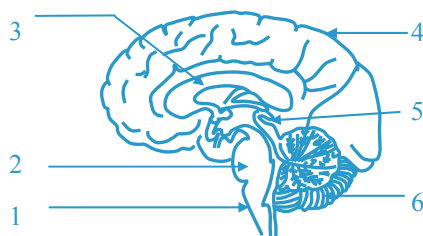
2. Attempt any five of the following: [10]

- i. Draw a neat labelled diagram of the human excretory system.
- ii. Differentiate between Mendel's monohybrid cross and dihybrid cross.
- iii. Explain the following reaction with the help of a balanced chemical equation:  
Magnesium reacts with hot water.
- iv. What is recycling? Give one example.
- v. What are vestigial organs? Give one example.
- vi. Write a short note on Catenation.

3. **Attempt any five of the following questions:**

[15]

- i. Write the names of the indicated parts 1 to 6 in the following diagram:



**Human Brain**

- ii. What is the need to use eco-friendly technology?  
iii. State the IUPAC names of the following compounds:  
a.  $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-OH}$   
b.  $\text{HCOOH}$   
c.  $\text{CH}_3\text{-CH}_2\text{-CH=CH}_2$ .  
iv. What is embryology? How does its study lead us to understand evolution?  
v. What are the two types of nerves? Write their functions.  
vi. What would be the consequences of the deficiency of haemoglobin in the human body?

4. **Attempt any one of the following:**

[5]

- i. Answer the following questions with respect to the sexual reproduction in plants:  
a. State the name of the functional unit concerned with sexual reproduction.  
b. Name the part made up of the stigma, style and ovary.  
c. Name the swollen lower part of the carpel.  
d. Name the male part of the flower.  
e. Where are the pollen grains produced?  
ii. In the extraction of aluminium:  
a. Name the process of concentration of bauxite.  
b. Write the cathode reaction in electrolytic reduction of alumina.  
c. Write the function and chemical formula of cryolite.  
d. Write a chemical equation for the action of heat on aluminium hydroxide.  
e. Why is it necessary to replace anodes times to time?