

A-5-Y

Roll No.....

Total No. of Questions : 18]

[Total No. of Printed Pages : 8

**XRSZJF19**

**22105-Y**

**SCIENCE**

*(Physics, Chemistry & Life Science)*

Time : 3 Hours]

[Maximum Marks : 84

**Section-A**

**(PHYSICS)**

**(Long Answer Type Questions)**

1. (a) Define refractive index. Write the refractive index of water.
- (b) Light enters from air to glass having refractive index 1.5. What is speed of light in glass ? The speed of light in air is  $3 \times 10^8$  m/s. 2+1+3

*Or*

- (a) Define power of lens. Give its units.
- (b) A doctor has prescribed a corrective lens of power +1.5D. Find the focal length of lens. Is the prescribed lens diverging or converging ? 3+3

XRSZJF19-22105-Y

Turn Over

**A-5-Y**

(Short Answer Type Questions)

2. ✓ What is refraction ? Write the laws of refraction. 2+2

Or

Write properties of the image formed by a plane mirror. 4

3. Explain the atmospheric refraction. Why do stars twinkle ? 2+2

Or

A person is not able to see far off objects clearly. From which defect of the eye he is suffering from ? How this defect is corrected ? 3+1

4. What is the highest and the lowest total resistance that can be secured by combination of four coils of resistances 4 ohms, 8 ohms, 12 ohms and 24 ohms ? 2+2

Or

✓ Explain the heating effect of current and derive the relation  $H = I^2RT$ . 2+2

(Very Short Answer Type Questions)

2 each

5. (i) Why is series arrangement not used for domestic circuits ?  
(ii) What are the disadvantages of fossil fuels ?  
(iii) What is the principle of an electric motor ?

(Multiple Choice Questions)

1 each

6. (i) The semi-conductor material used for making solar cells is :  
(A) Silver  
(B) Silicon  
(C) Germanium  
(D) Silicon and gallium

- (ii) A rectangular coil of copper wire is rotated in a magnetic field. The direction of induced current changes once in each :
- (A) Two revolutions      (B) One revolution  
(C) Half revolution      (D) One-fourth revolution
- (iii) The disease caused due to weakening of ciliary muscles and diminishing of flexibility of lens is :
- (A) Myopia  
(B) Presbyopia  
(C) Hypermetropia  
(D) Both myopia and hypermetropia
- (iv) Fleming's left-hand rule is applied to find the direction of :
- (A) Magnetic lines of force  
(B) Induced current  
(C) Force on a current carrying conductor  
(D) None of these

**Section-B**

**(CHEMISTRY)**

**(Long Answer Type Questions)**

7. ✓ How and under what conditions does the ethanoic acid react with ethanol, sodium hydroxide and sodium bicarbonate ? Write the equations for each reaction. 2+2+2

*Or*

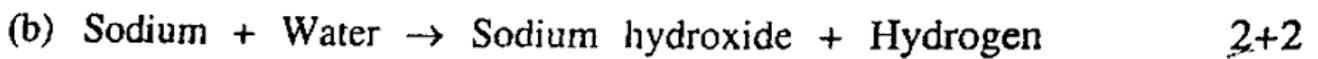
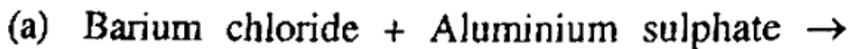
Explain the characteristic features of carbon, that give rise to large number of compounds. Why the compounds are exceptionally stable ? 4+2

**(Short Answer Type Questions)**

8. What are redox reactions ? Give *two* examples. 2+2

*Or*

Write the balanced chemical equation for the following reactions :



9. ✓ How do metals and non-metals differ each other on the basis of their  $\geq$  chemical properties ? 4

*Or*

How zinc is extracted from its sulphide (ZnS) and carbonate ores (ZnCO<sub>3</sub>) ? Give examples. 2+2

10. How sodium hydroxide is obtained from common salt ? Name the other byproducts obtained during the process. 3+1

*Or*

Give the reaction of metals with acids and bases. Write equations for each reaction. 2+2

**(Very Short Answer Type Questions)** 2 each

11. (i) ✓ Aluminium is highly reactive metal, yet it is used to make utensils for cooking, why ?
- (ii) Define the modern periodic law. Name the scientist who has given this law.
- (iii) Draw the structure of benzene and cyclohexane.

(Multiple Choice Questions)

1 each

(i) Which of the following statements is *not* correct when going from left to right across the periodic table ?

- (A) The metallic character decreases
- (B) The number of valence electrons increases
- (C) The atoms lose their electrons more easily
- (D) The metal oxide becomes more acidic

(ii) The decomposition reaction takes place in presence of :

- (A) Heat
- (B) Light
- (C) Electricity
- (D) All of these

(iii) A compound reacts with dilute hydrochloric acid to produce effervescence. The gas evolved extinguishes a candle. The gas is :

- (A)  $\text{NO}_2$
- (B)  $\text{CO}_2$
- (C)  $\text{O}_2$
- (D)  $\text{CO}$

(iv) Which of the following elements has twice as many electrons in its second shell as compared to its first shell ?

- (A) Carbon
- (B) Silicon
- (C) Sodium
- (D) Nitrogen

**Section-C**

**(LIFE SCIENCE)**

**(Long Answer Type Questions)**

13. Describe the excretory system in human beings along with a well labelled diagram. <https://www.jkboseonline.com> 4+2

*Or*

How are water, minerals and food transported in plants ? 2+2+2

**(Short Answer Type Questions)**

14. Why is vegetative propagation practised for growing some types of plants ? 4

*Or*

Why is DNA copying an essential part of the process of reproduction ? 4

15. How can you help in reducing the problem of waste disposal ? Give any two methods. 3+1

*Or*

What will happen if we will kill all the organisms in one trophic level ? Give example. 3+1

XRSZJF19-22105-Y

**A-5-Y**

16. Why should we use natural resources judiciously ? Give example. 3+1

Or

Name the stakeholders which are responsible for the management of forests and write their role for the management of forests. 2+2

(Very Short Answer Type Questions) 2 each

17. (i) What do fossils tell us about the process of evolution ?  
(ii) What is reflex action ?  
(iii) Name the hormones produced by pituitary gland.

(Multiple Choice Questions) 1 each

18. (i) Which of the following parts of bryophyllum is vegetative ?  
(A)  Leave  
(B) Root  
(C) Stem  
(D) Flower
- (ii) Difference between the two individuals is due difference in :  
(A) DNA and Protein  
(B) DNA and RNA  
(C)  DNA only  
(D) RNA only

(iii) Eggs are produced in :

- (A) Uterus
- (B) Fallopian tubes
- (C) Vagina
- (D) Ovary

(iv) The sex of a child depends upon the chromosomes present in the :

- (A) egg of the female
- (B) sperm of the male
- (C) both male and female
- (D) none of these

<https://www.jkboseonline.com>

Whatsapp @ 9300930012

Send your old paper & get 20/-

अपने पुराने पेपर्स भेजे और 20 रुपये पायें,

Paytm or Google Pay से

5ZJF19-22105-Y

5-Y