

## PHYSICS

### BOOKS - NAVNEET SCIENCE (HINGLISH)

### MISCELLANEOUS QUESTIONS

#### Gravitation

1. Let the period of revolution of a planet at a distance  $R$  from a star be  $T$ . Prove that if it was at a distance of  $2R$  from the star, its period of revolution will be  $\sqrt{8}T$ .

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2. State the importance of Newton's universal law of gravitation .



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3. Explain the factors affecting the value of  $g$  .



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4. If the value of  $g$  suddenly becomes twice its value , it will become two times more difficult to pull a heavy object along the floor . Why ?



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## Periodic Classification Of Elements

1. State Dobereiner law of triads giving examples.

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2. In Dobereiner's triad containing Li, Na, K, if atomic masses of lithium and potassium are 6.9 and 39.1, then what will be the atomic mass of sodium?

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3. What is meant by Newlands law of octaves?

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4. What were the limitations of Newlands' Law of Octaves?

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5. State Mendeleev's periodic law.

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6. State Mendeleev's periodic law.

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7. Describe briefly Mendeleev's periodic table along with its merits.

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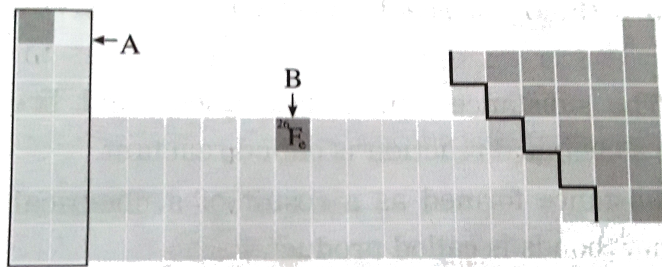
8. MODERN PERIODIC TABLE

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9. MODERN PERIODIC TABLE

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10. Observe the figure and answer the following questions



(a) Identify the block shown by box A and write an electronic configuration of any one element of this block.

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11. (b) Identify the block of element denoted by letter B and write its period number .

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12. (a) Define the following terms:

(i) Valency, (ii) Atomic size

(b) How do the valency and the atomic size of the element vary while going from left to right along a period in the modern periodic table?

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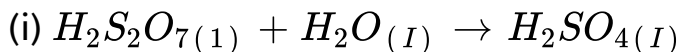
## Chemical Reactions And Equations

1. Explain the term reactant and product giving examples.

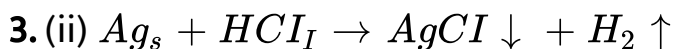
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2. Write the balanced equations for the following reactions

:

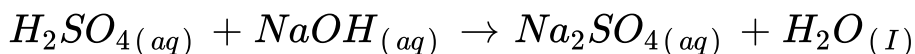


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4. (iii)



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5. (a) How does the rate of reaction depend upon the concentration of reactants ?

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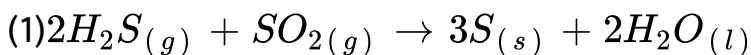
7. How does the rate of a reaction depend upon the temperature of reactants ? Give a suitable example ?

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8. How does the rate of a reaction depend upon the catalyst?  
? Give a suitable example.

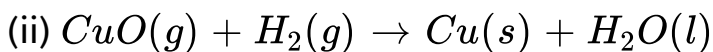
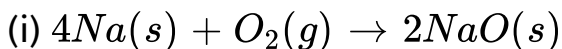
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9. Identify the substances that are oxidised and the substances that are reduced in the following reactions :



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10. Identify the substances that are oxidised and the substances that are reduced in the following reactions.





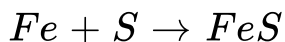
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11. Identify the substances that are oxidised and the substances that are reduced in the following reactions :

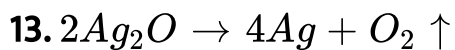


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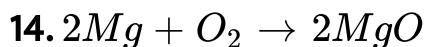
12. Identify the following reactions the reactants that undergo oxidation and reduction.



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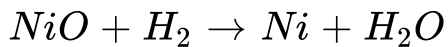


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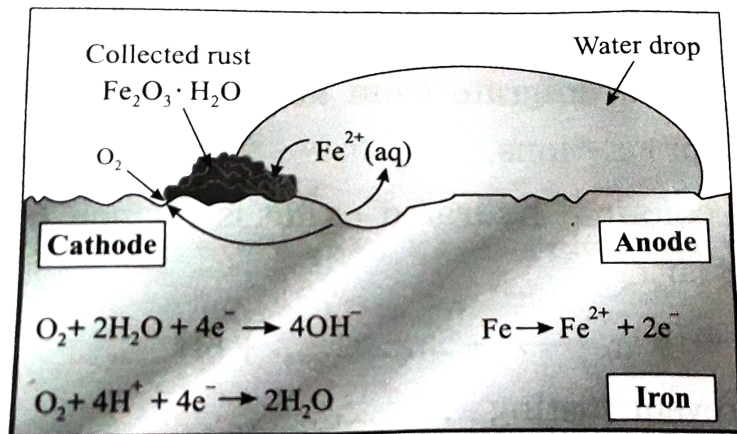
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15. Identify from the following reactions the reactants that undergo oxidation and reduction.



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16. Observe the following picture and write down the chemical reaction with explanation.

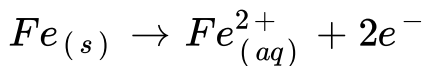


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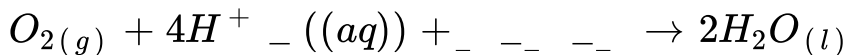
17. Complete the process of iron rusting by filling the blanks. Suggest a way to prohibit the process.

The iron rust is formed due to \_\_\_\_\_ reaction. Different regions on iron surface become anode and cathode.

Reaction on anode region :

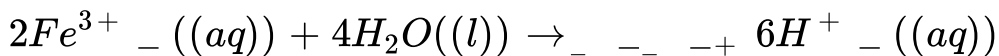


Reaction on cathode region.



When  $Fe^{2+}$  ions migrate from anode region they react with \_\_\_\_\_ to form  $Fe^{3+}$  ions.

A reddish coloured hydrated oxide is formed from \_\_\_\_\_ ions. It is called rust.



A way to prevent rusting \_\_\_\_\_

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## 18. RANCIDITY

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## Effects Of Electric Current

1. What is heating effect of electric current? What is its origin?

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2. Statement 1: Electric current (flow of electrons) creates heat in a resistor. Statement 2 : Heat in the resistor is created according to the law of energy conservation.

Explain Statement 1 with the help of Statement 2.

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3. Explain the term short circuiting. What does a short circuit lead to?

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4. How does the short circuit form? What is its effect?

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5. Explain the application of heating effect of electric current in a fuse.

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6. What is the effect on the magnetic needle in Oersted's experiment, when (1) a current is passed through the wire (2) the current through the wire is increased (3) The current through the wire to stopped (4) The current through the wire is reversed (5) The distance between the magnetic needle and the wire is increased , keeping the current through the wire constant ?

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7. State the conclusions that can be drawn from Oersted's experiment.

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8. What is overloading? When does it occur? What does it cause? How can overloading be avoided?

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## Heat

1. Specific latent of fusion of ice is 80 cal/g. Explain this statement ?

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2. What is the role of anomalous behaviour of water in preserving aquatic life in regions of cold climate?

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3. Explain the following : In cold regions in winter, the rocks cracks due to anomalous expansion of water.

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4. During winter, sometimes we see a white trail at the back of a flying aeroplane in a clear sky. Explain why.

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5. While deciding the unit for heat, which temperature interval is chosen ? Why ?

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6. Explain how the specific heat capacity of a solid can be determined (measured) by the method of mixture.

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7. Explain the following : How can you relate the formation of water droplets on the outer surface of a bottle taken out of a refrigerator with formation of dew ?

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**Refraction Of Light**

1. Explain in brief the flickering of an object seen through a turbulent stream of hot air rising above the Holi fire

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2. With a neat labelled diagram, describe the experiment to demonstrate dispersion of sunlight ( white light ) by a prism.

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3. How does the dispersion of white light take place when it passes through a glass prism ?

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4. What is a spectrum ? Why do we get a spectrum of seven when while light is dispersed by a prism ?

OR

Explain how a spectrum is formed.

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5. What is a spectrum ? Why do we get a spectrum of seven when while light is dispersed by a prism ?

OR

Explain how a spectrum is formed.

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6. From incident white light how will you obtain white emergent light by making use of two prisms ?

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7. You must have seen chandeliers having glass prisms. The light from a tungsten bulb gets dispersed while passing through these prisms and we see a coloured spectrum. If we use an LED light instead of a tungsten bulb, will we be able to see the same effect ?

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8. Explain the conditions under which a mirage is seen.

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## Lenses

1. An object is kept in front of a lens of focal length + 10 cm.

Describe the nature of the image in the following cases . . :

(1) The object distance is 25 cm. (2) The object distance is 5 cm.

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2. What is the function of the iris and the muscles connected to the lens in the human eye ?

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3. (a) What is presbyopia ? State its cause. How is it corrected ?

(b) why does the sun appear reddish early in the morning ?

Explain with the help of a labelled diagram.

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4. What is a bifocal lens ?

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5. What enables our eyes to see a motion picture ?

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6. What is colour-blindness ?



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7. Explain the perception of colour of the human eye .



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8. Explain in short perception of colour.



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9. Write a note on perception of colour.



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## Metallurgy

1. Aqua regia is

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2. How does a metal react with a nonmetal ?

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3. What is bauxite ? What are the main impurities found in this ore ?

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4. From which ore is aluminium extracted ? What are the stages in its extraction (give only names ) ?

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5. How is zinc extracted from its ore zinc sulphide or zinc carbonate ?

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6. Explain the term corrosion with a suitable example.

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7. What is corrosion ?

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8. Write three methods of preventing rusting of iron .

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## Space Missions

1. Why are geostationary satellites not useful for studies of polar regions ?

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2. Why is it beneficial to use satellite launch vehicles made of more than one stage ?

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3. What is meant by space debris ? Why there is need to manage debris ?

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## Assignment

1. What happens when light falls on the retina ?

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2. Arrange the following metals in the decreasing order of chemical reactivity : Cu, Mg , Fe,Ca,Zn



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