



Octahedral classes, kharadi
2nd floor, yashwant plaza, near bank of India,

Class 10 - Science
light and periodic classification

Maximum Marks: 60

Time Allowed: 2 hours

General Instructions:

ANSWER ALL QUESTIONS

Section A

1. Name two elements you would expect to show chemical reactions similar to magnesium. What is the basis for your choice? **1**
2. How many periods and groups are present in the long form of periodic table? **1**
3. Define groups. **1**
4. What is the name given to the horizontal row in the periodic table? **1**
5. To which group noble gas belong in the Modern Periodic table? **1**
6. What is relative refractive index? **1**
7. What is an optically denser medium? **1**
8. Which mirror-convex or concave has larger field of view? **1**
9. What is light? **1**
10. Define the term refraction of light. **1**
11. Define the term angle of refraction. **1**
12. What is the name given to change of path of light with change of medium ? **1**
13. Give the cartesian sign convention for: **1**
(a) height of a real image, and (b) height of a virtual image.
14. What is the unit of refractive index? **1**
15. Lithium, Sodium, Potassium are all metals that react with water to liberate hydrogen gas. Is there any similarity in the atoms of these elements? **2**
16. Name two elements you would expect to show same kind of chemical reactivity as magnesium. What is the basis for your choice? **2**
17. State Newland's Law of Octaves. **2**
18. Table is a part of periodic table **2**

H	He
Li	Be	B	C	N	O	F	Ne
Na	Mg	Al	Si	P	S	Cl	Ar

Use this table and explain why

(a) Li and Na are considered as active metals

(b) Atomic size of Mg is less Than that of Na

(c) Fluorine is more reactive than chlorine.

19. Explain why sodium is more reactive than lithium. 2
20. What are the uses of concave mirrors? 2
21. What is mirror formula ? Does this formula hold good for a plane mirror ? 2
22. Draw ray diagram showing the image formation by a convex lens when an object is placed at twice the focal length of the lens. 2
23. How can you show that if a ray enters a rectangular glass slab obliquely and emerges from the opposite face, the emergent ray is parallel to the incident ray. 2
24. Name a mirror which can give an erect and enlarged image of an object. 2
25. How do the atomic sizes vary in a period? 3
26. Give a brief discussion of the Mendeleev's classification of the elements. 3
27. Define magnification of a spherical mirror. What will be the magnification in case of plane mirror? 4
28. An object 5 cm high is placed at a distance of 10 cm from a convex mirror of radius of curvature 30 cm. Find the nature, position and size of the image. 4
29. One-half of a convex lens is covered with a black paper. Will this lens produce a complete image of the object? Verify your answers experimentally. Explain your observations. 4
30. An object 2 cm high is placed at a distance of 16 cm from a concave mirror which produces a real image 3 cm high. 4
 - (i) Find the position of the image.
 - (ii) What is the focal length of mirror?
31. Find the size, nature and position of image formed when an object of size 1 is placed at a distance of 15 cm from a concave mirror of focal length 10 cm. 4