

A n s w e r s**Chapter 1**

1. (i) 2. (d) 3. (a)

Chapter 2

1. (d) 2. (b) 3. (d) 4. (c)

Chapter 3

1. (d) 2. (c) 3. (a) 4. (c)

Chapter 4

1. (b) 2. (c) 3. (b)

Chapter 5

1. (c) 2. (b)

Chapter 6

1. (c) 2. (a) 3. (d) 4. (b)

Chapter 7

1. (d) 2. (b) 3. (d)

Chapter 8

1. (b) 2. (c) 3. (d)

Chapter 9

1. (c) 2. (d) 3. (a)

Chapter 10

1. (d) 2. (d) 3. (b)
4. (a) 5. (d) 6. (c)

7. Distance less than 15 cm; virtual; Enlarged.

9. Yes

10. 16.7 cm from the lens on the other side; 3.3 cm, reduced; real, inverted.

11. 30 cm

12. 6.0 cm, behind the mirror; virtual, erect

13. $m = 1$ indicates that image formed by a plane mirror is of the same size as the object. Further, the positive sign of m indicates that the image is virtual and erect.

14. 8.6 cm, behind the mirror; virtual, erect; 2.2 cm, reduced.

15. 54 cm on the object side; 14 cm, magnified; real, inverted.

16. -0.50 m; concave lens

17. $+0.67$ m; converging lens

Chapter 11

- (b)
- (d)
- (c)
- (c)
- (i) -0.18 m; (ii) $+0.67$ m
- Concave lens; -1.25 D
- Convex lens; $+3.0$ D

Chapter 12

- (d)
- (b)
- (d)
- (c)
- Parallel
- 122.7 m; $\frac{1}{4}$ times
- 3.33Ω
- $4.8 \text{ k}\Omega$
- 0.67 A
- 4 resistors
- 110 bulbs
- 9.2 A, 4.6 A, 18.3 A
- (i) 8 W; (ii) 8 W
- 0.73 A
- 250 W TV set in 1 hour
- 120 W
- (b) High resistivity of alloys
(d) inversely.

Chapter 13

- (d)
- (c)
- (a)
- (d)
- (c)
- (a) False (b) True (c) True (d) False
- vertically downwards
- (i) The needle will move momentarily in one direction
(ii) The needle will move momentarily but in opposite direction to (i)
(iii) No deflection in the needle would be observed.
- (a) Right-hand thumb rule, (b) Fleming's left-hand rule, (c) Fleming's right-hand rule.

Chapter 14

- (b)
- (c)
- (c)

Chapter 15

- (a), (c), (d)
- (b)
- (d)

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SCIENCE

TEXTBOOK FOR CLASS X



1064

विद्यया ऽ मृतमश्नुते



एन सी ई आर टी
NCERT

राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्
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F O R E W O R D

The National Curriculum Framework, (NCF), 2005, recommends that children's life at school must be linked to their life outside the school. This principle marks a departure from the legacy of bookish learning which continues to shape our system and causes a gap between the school, home and community. The syllabi and textbooks developed on the basis of NCF signify an attempt to implement this basic idea. They also attempt to discourage rote learning and the maintenance of sharp boundaries between different subject areas. We hope these measures will take us significantly further in the direction of a child-centred system of education outlined in the National Policy on Education (1986).

The success of this effort depends on the steps that school principals and teachers will take to encourage children to reflect on their own learning and to pursue imaginative activities and questions. We must recognise that, given space, time and freedom, children generate new knowledge by engaging with the information passed on to them by adults. Treating the prescribed textbook as the sole basis of examination is one of the key reasons why other resources and sites of learning are ignored. Inculcating creativity and initiative is possible if we perceive and treat children as participants in learning, not as receivers of a fixed body of knowledge.

These aims imply considerable change in school routines and mode of functioning. Flexibility in the daily time-table is as necessary as rigour in implementing the annual calendar so that the required number of teaching days are actually devoted to teaching. The methods used for teaching and evaluation will also determine how effective this textbook proves for making children's life at school a happy experience, rather than a source of stress or boredom. Syllabus designers have tried to address the problem of curricular burden by restructuring and reorienting knowledge at different stages with greater consideration for child psychology and the time available for teaching. The textbook attempts to enhance this endeavour by giving higher priority and space to opportunities for contemplation and wondering, discussion in small groups, and activities requiring hands-on experience.

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