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# Biology Lab Manual Class Xii Cbse

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Biology

Thinking about Biology

ISC Commerce Class-XII (Vol.II)

Lab Manual Biology Class 11

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Comprehensive Laboratory Manual in Biology XII

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Biology Laboratory Manual

Comprehensive Practical Physics XI

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Lab Manual for Biology  
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**Biology Lab Manual**  
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CAT, 8.Fire-HYMN, 9. Snake , 10.My  
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Modern English, 4.English As a World  
Language, 5. Story of English Drama,  
6.Story of the Novel in English  
Composition 1. Precis Writing,  
2.Comprehension, 3 Letters/Applications,  
4.Essay Writing Idioms & Phrases

1.Idioms and Phrases Translation  
1.Translation Grammar 1. Use of  
Different-Tense forms, 2.Transformation  
of Sentences.3. Reported Speech,  
4.Modal Auxiliaries 5.Vaise (Active-  
Passive) 6.Combination of Sentences, 7.  
Preposition Articles Spelling Test Correct  
Sentences Examination Paper  
*Lab Manual Biology Class 11* SBPD  
Publications

1. Solid State 2. Solutions 3. Electro-  
Chemistry 4. Chemical Kinetics 5.  
Surface Chemistry 6. General Principles  
And Processes Of Isolation Of Elements  
7. P-Block Elements 8. D-And F-Block  
Elements 9. Coordination Compounds  
And Organometallics 10. Haloalkanes  
And Haloarenes 11. Alcohols, Phenols  
And Ethers 12. Aldehydes Ketones And  
Carboxylic Acids 13. Organic Compounds  
Containing Nitrogen 14. Biomolecules  
15. Polymers 16. Chemistry In Everyday  
Life Appendix : 1. Important Name  
Reactions And Process 2. Some  
Important Organic Conversion 3. Some  
Important Distinctions Long - Antilog  
Table Board Examination Papers.

**Practical/Laboratory Manual Biology**  
**-by Dr. Sunita Bhagia, Er. Meera**  
**Goyal (SBPD Publications)** Oswaal  
Books and Learning Private Limited  
THE MADER/WINDELSPECHT STORY...  
The twelfth edition of Biology is a  
traditional, comprehensive introductory

biology textbook, with coverage from Cell Structure and Function to the Conservation of Biodiversity. The book, which centers on the evolution and diversity of organisms, is appropriate for any one- or two-semester biology course. *Biology, 12th Edition* is the epitome of Sylvia Mader's expertise. Its concise, precise writing-style employs lucid language to present the material as succinctly as possible, enabling students—even non-majors—to master the foundational concepts before coming to class. “Before You Begin”, “Following the Themes”, and “Thematic Feature Readings” piece together the three major themes of the text—evolution, nature of science, and biological systems. Students are consistently engaged in these themes, revealing the interconnectedness of the major topics in biology. Sylvia Mader typifies an icon of science education. Her dedication to her students, coupled with her clear, concise writing-style has benefited the education of thousands of students over the past three decades. The integration of the text and digital world has been achieved with the addition of Dr. Michael Windelspecht's facility for the development of digital learning assets. For over ten years, Michael served as the Introductory Biology Coordinator at Appalachian State University—a program that enrolls over 4,500 non-science majors annually. Michael is the lead architect in the design of McGraw-Hill's Connect Plus and LearnSmart media content for the Mader series. These assets allow instructors to easily design interactive tutorial materials, enhance presentations in both online and traditional environments, and assess the learning objectives and outcomes of the course.

*Problems and Solutions in Mathematics*

*Class XII - SBPD Publications (English)*  
 McGraw-Hill Science/Engineering/Math  
*Exploring Biology in the Laboratory: Core Concepts* is a comprehensive manual appropriate for introductory biology lab courses. This edition is designed for courses populated by nonmajors or for majors courses where abbreviated coverage is desired. Based on the two-semester version of *Exploring Biology in the Laboratory, 3e*, this Core Concepts edition features a streamlined set of clearly written activities with abbreviated coverage of the biodiversity of life. These exercises emphasize the unity of all living things and the evolutionary forces that have resulted in, and continue to act on, the diversity that we see around us today.

#### **Exam Scorer Science Class - XII**

McGraw-Hill Education

Syllabus : Unit I : Solid State Unit II : Solutions Unit III : Electrochemistry Unit IV : Chemical Kinetics Unit V : Surface Chemistry Unit VI : General Principles and Processes of Isolation of Elements Unit VII : “p”-Block Elements Unit VIII : “d” and “f” Block Elements Unit IX : Coordination Compounds Unit X : Haloalkanes and Haloarenes Unit XI : Alcohols, Phenols and Ethers Unit XII : Aldehydes, Ketones and Carboxylic Acids Unit XIII : Organic Compounds Containing Nitrogen Unit XIV : Biomolecules Unit XV : Polymers Unit XVI : Chemistry in Everyday Life Content : 1. Solid State 2. Solutions 3. Electro-Chemistry 4. Chemical Kinetics 5. Surface Chemistry 6. General Principles And Processes Of Isolation Of Elements 7. P-Block Elements 8. D-And F-Block Elements 9. Coordination Compounds And Organometallics 10. Haloalkanes And Haloarenes 11. Alcohols, Phenols And Ethers 12. Aldehydes Ketones And

Carboxylic Acids 13. Organic Compounds Containing Nitrogen 14. Biomolecules 15. Polymers 16. Chemistry In Everyday Life Appendix : 1. Important Name Reactions And Process 2. Some Important Organic Conversions 3. Some Important Distinctions

*Practical/Laboratory Manual Physics Class XII based on NCERT guidelines by Dr. Sunita Bhagia & Megha Bansal* PHI Learning Pvt. Ltd.

The Biology Laboratory Manual by Vodopich and Moore was designed for an introductory biology course with a broad survey of basic laboratory techniques.

The experiments and procedures are simple, safe, easy to perform, and especially appropriate for large classes. Few experiments require more than one class meeting to complete the procedure. Each exercise includes many photographs, traditional topics, and experiments that help students learn about life. Procedures within each exercise are numerous and discrete so that an exercise can be tailored to the needs of the students, the style of the instructor, and the facilities available.

*Practical/Laboratory Manual Biology Class XI based on NCERT guidelines by Dr. Sunita Bhagia & Megha Bansal* Oswaal Books and Learning Private Limited

This laboratory guide, intended for undergraduate and postgraduate students, includes techniques and their protocols ranging from microscopy to in vitro protein synthesis. Experiments relating to chromosomes study and identifying the phases of cell division are explained. The book lucidly deals with the extraction and characterization of chromatin and techniques for studying its modifications, the gene methodology for identification of mutation and the methodology for isolation of nucleic

acids from all types of organisms, such as viruses, fungi, plants and animals. All the protocols have been explained following step-by-step method. Different types of electrophoresis and their techniques, including blotting techniques and the methodology for stripping of probes from membranes for reusing the blot, have also been dealt with. Protocols on modern molecular biology techniques—PCR, restriction enzyme digest, DNA isolation, cloning and DNA sequencing—add weightage to the book. It also gives necessary knowledge of different types of stains, staining techniques, buffers, reagents and media used in the protocols. To help students prepare for answering viva voce questions, the book includes MCQs based on the discussed techniques.

Arihant CBSE Biology Term 2 Class 12 for 2022 Exam (Cover Theory and MCQs)

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Section B : Vistas (Supplementary Reader)

1. The Third Level - Jack Finney, 2. The Tiger King - Kalki, 3. Journey to the End of the Earth - Tishani Doshi, 4. The Enemy - Pearl s. Buck, 5. Should Wizard Hit Mommy- John Updike, 6. On the Face of it - Susan Hill, 7. Evans Tries an O-Level- Colin Dexter, 8. Memoreis of

Childhood - Zitkala-Sa and Bama,  
Section C : Grammar, Reading and  
Writing 1. Unseen Passage, 2. Case  
Based Factual Passages, 3.  
Advertisement, Notice and Poster, 4.  
Writing Invitation and Replies, 5. Letter  
Writing, 6. Report Writing, 7. Article, 8.  
Debate, 9. Speech Writing, Board  
Examination Paper

Oswaal ISC Sample Question Papers  
Class 12, Semester 2 Biology Book (For  
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For one-semester, non-majors  
introductory biology laboratory courses  
with a human focus. This manual offers a  
unique, extensively class-tested  
approach to introductory biology  
laboratory. A full range of activities show  
how basic biological concepts can be  
applied to the world around us. This lab  
manual helps students: Gain practical  
experience that will help them  
understand lecture concepts Acquire the  
basic knowledge needed to make  
informed decisions about biological  
questions that arise in everyday life  
Develop the problem-solving skills that  
will lead to success in school and in a  
competitive job market Learn to work  
effectively and productively as a  
member of a team The Fifth Edition  
features many new and revised activities  
based on feedback from hundreds of  
students and faculty reviewers.

Oswaal CBSE Question Bank Class 12  
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Biology, Mathematics [Combined &  
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Publications

A. List of Experiments 1. Study pollen  
germination on a slide, 2. Collect and  
study soil from at least two different  
sites and study them for texture,  
moisture content, pH and water holding  
capacity. Correlate with the kinds of  
plants found in them, 3. Collect water

from two different water bodies around  
you and study them for pH, clarity and  
presence of any living organism, 4.  
Study the presence of suspended  
particulate matter in air at two widely  
different sites, 5. Study the plant  
population density by quadrat method,  
6. Study the plant population frequency  
by quadrat method, 7. Prepare a  
temporary mount of onion root tip to  
study mitosis. 8. Study the effect of  
different temperatures and three  
different pH on the activity of salivary  
amylase on starch. 9. Isolate DNA from  
available plant material such as spinach,  
green pea seeds, papaya, etc. B.  
Study/observation of the following  
(Spotting) 1. Flowers adapted to  
pollination by different agencies (wind,  
insects, birds). 2. Pollen germination on  
stigma through a permanent slide. 3.  
Identification of stages of gamete  
development, i.e., T.S. of testis and T.S.  
of ovary through permanent slides (from  
grasshopper/mice). 4. Meiosis in onion  
bud cell or grasshopper testis through  
permanent slides. 5. T.S. of blastula  
through permanent slides (Mammalian).  
6. Mendelian inheritance using seeds of  
different colour/sizes of any plant. 7.  
Prepare pedigree charts of any one of  
the genetic traits such as rolling of  
tongue, blood groups, ear lobes, widow's  
peak and colour blindness. 8. Controlled  
pollination-emasculatation, tagging and  
bagging. 9. Common disease causing  
organisms like Ascaris, Entamoeba,  
Plasmodium, any fungus causing  
ringworm through permanent slides or  
specimens. Comment on symptoms of  
diseases that they cause. 10. Two plants  
and two animals (model/virtual images)  
found in xeric conditions. Comment upon  
their morphological adaptations. 11. Two  
plants and two animals (models/virtual  
images) found in aquatic conditions.

Comment Content EXPERIMENTS 1.To study pollen germination on slide. 2. To study the texture moisture content pH and waterHolding Capacity of soils collected from different sites. 3.To collect water from different water bodies and study them for pH Clarity and presence of living organisms. 4. To study the presence of suspended particulate matter in air at different sites. 5.To study plant population density by quadrat method.6.To study plant population frequency by quadrat method. 7.To study various stages of mitosis in root tip of onion by preparing slide in acetocarmine. 8.To study effect of different temperature and three different pH onthe activity of salivary amylase. 9. To study the isolation of DNA from available plant material such as spinach green pea,seeds, papaya etc. SPOTTING 1.Pollination in flowers. 2. Pollen germination. 3.Slides of mammal tissues. 4. Meiosis cell division. 5. T. S. of Blastula. 6. Mendel's inheritance laws. 7. Pedigree chart. 8. Controlled pollination. 9.Common disease causing organisms. 10. Xerophytic adaptation. 11.Aquatic adaptation.

**Oswaal CBSE Term 2 English Core, Physics, Chemistry & Biology Class 12 Sample Question Papers (Set of 4 Books) (Now Based on the CBSE Term-2 Subjective Sample Paper of Dt. 14 Jan 2022)** Oswaal Books and Learning Private Limited  
Lab Manual

**Oswaal CBSE MCQs Chapterwise For Term I & II, Class 12, Business Studies (For 2021-22 Exam)** Laxmi Publications

"• Solved Board Examination Paper 2020  
• Latest Board Sample Paper • Revision Notes • Based on Latest CBSE Syllabus released on 22th July 2021 • Commonly Made Errors & Answering Tips • Most

Likely Questions (AI) for 2022 Board Exams "

Practical/Laboratory Manual Physics Class - XII -by Er. Meera Goyal (SBPD Publications) S. Chand Publishing

SECTION : A EXPERIMENTS 1.To determine resistance per cm of a given wire by plotting a graph for potential difference versus current, 2.To find resistance of a given wire using meter bridge and hence determine the specific resistance (Resistivity) of its material, 3.To verify the laws of combination (Series/Parallel) of resistance using ameter bridge, 4.To compare the e.m.f. of two given primary cells using potentiometer, 5.To determine the internal resistance of a given primary cell (e.g. Leclanche cell) using potentiometer, 6.To determine the resistance of a galvanometer by half deflection method and to find its figure of merit. 7 A. To convert a given galvanometer (of known resistance and figure of merit) into an ammeter of desired range and to verify the same, 7.B.To convert a given galvanometer (of known resistance and figure of merit) into a voltmeter of desired range and to verify the same. 8.To find the frequency of AC mains with a sonometer and horse-shoe magnet. SECTION : B EXPERIMENTS 1.To find the value of  $v$  for different values of  $u$  in case of a concave mirror and to find the focal length, 2.To find the focal length of a convex lens by plotting graph between  $u$  and  $v$  or  $1/u$  and  $1/v$ . 3.To find the focal length of a convex mirror, using a convex lens.4.To find the focal length of a concave lens, using a convex lens. 5. To determine the angle of minimum deviation for a given prism by plotting a graph between the angle of incidence and angle of deviation, 6. To determine refractive index of a glass slab using a travelling microscope, 7.To

find the refractive index of a liquid by using a convex lens and a plane mirror, 8.To draw I-V characteristics curve of a p-n function in forward bias and reverse bias, 9.To draw the characteristics curve of a zener diode and to determine its reverse break down voltage, 10.To study the characteristics of a common-emitter n-p-n or p-n-p transistor and to find out the values of current and voltage gains.

**SECTION : A ACTIVITIES**

- 1.To measure the resistance and impedance of an inductor with or without iron core, 2.To measure resistance voltage (AC/DC), current (AC) and check continuity of given circuit using multimeter, 3. To assemble a household circuit comprising of three bulbs, three (on/off)switches, a fuse and a power source. 4.To assemble the components of a given electrical circuit. 5.To study the variation in potential drop with length of a wire for a steady current, 6.To draw the diagram of a given open circuit comprising atleast a battery, resistor/rheostat, key ammeter and voltmeter. Make the components that are not connected in proper order and correct the circuit and also the circuit diagram.

**SECTION : B ACTIVITIES**

- 1.To study effect of intensity of light (by varying distance of the source) on an LDR (Light Depending Resistor), 2.To identify a diode, a LED, a transistor, an IC, a resistor and a capacitor from mixed collection of such items, 3. Use a multimeter to : (i) identify the transistor, (ii) distinguish between n-p-n and p-n-p type transistor, (iii) see the unidirectional flow of current in case of a diode and a LED, (iv) Check whether a given electronic components (e.g diode, transistor or IC) is in working order, 4.To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab, 5.To observe polarisation of light using two polaroids, 6. To observe

diffraction of light due to a thin slit, 7.To study the nature and size of the image formed by : (i) convex lens, (ii) concave mirror on a screen by using candle and a screen for different distance of the candle from the lens/mirror, 8.To obtain a lens combination with the specified focal length by using two lenses from the given set of lenses.

**SUGGESTED INVESTIGATORY PROJECT**

- 1.To Study Various factors on which the Internal Resistance/EMF of a cell depends, 2.To study the variations in current following in a circuit containing L.D.R. because of variation. (a) In the power of incandescent lamp used to illuminate the L.D.R. Keeping all the lamps in fixed position (b) In the Distance of a incandescent lamp (of fixed power) used to illuminate the L.D.R. 3. To find the refractive indices of (a) Water (b) Oil (Transparent) using a plane mirror, an equiconvex lens (made from a glass of known refractive index) and an adjustable object needle, 4. To design an appropriate logic gate combination for a given truth table. 5. To investigate the relation between the ratio of : (i) Output and Input voltage (ii) Number of turns in secondary coils and primary coils of a self designed transformer. 6.To Investigate the dependence of angle of deviation on the angle of incidence, using a hollow prism filled one by one with different transparent fluids, 7.To Estimate the charge induced on each one of the two identical styrofoam balls suspended in a vertical plane by making use of Coulomb's Law :, 8.To study the factors on which the self inductance of a coil depends by observing the effect of this coil, when put in series with a resistor (bulb) in a circuit fed up by an a.c. source of adjustable frequency, 9.To study the earth's magnetic field using a tangent galvanometer.

**APPENDIX** Some

Important Tables of Physical Constants  
Logarithmic and other Tables

Biology Made Easy with Mnemonics Vol 1  
SBPD Publications

1. Indefinite Integrals, 2. Definite Integrals, 3. Applications of Integrals, 4. Differential Equations, 5. Applications of Differential Equations, 6. Vectors, 7. Scalar or Dot Product of Two Vectors, 8. Vector or Cross Product of Two Vectors, 9. Angle between Two Lines, 10. Straight Line, 11. The Plane,

**Lab Manual Biology Class 12** SBPD Publications

Lab Manual

**Chemistry Class - XII - SBPD Publications [2022-23]** Laxmi Publications

The Book may be a boon for Medical/Dental/Nursing Admission aspirants. Written by Second Topper of PMT in Aligarh Muslim University 1964 and FIRST Author of Jaypee Brothers. The Author has been guiding NEET Candidates on Facebook Group pages. The content is based upon CBSE Class

11 and Class 12 Syllabus. Multiple Choice Questions (MCQ) are listed at the end.

**Biology Laboratory Manual** Benjamin Cummings

Practical/Laboratory Manual Biology Class XII based on NCERT guidelines by Dr. Sunita Bhagia & Megha Bansal SBPD Publications

*Biology Class XII - SBPD Publications*  
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- Multiple Choice Questions based on new typologies introduced by the board- I. Stand- Alone MCQs, II. MCQs based on Assertion-Reason III. Case-based MCQs.
- Revision Notes for in-depth study
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- Include Questions from CBSE official Question Bank released in April 2021
- Answer key with Explanations
- Concept videos for blended learning (science & maths only)

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• [A Court Of Thorns And Roses \(a Court Of Thorns And Roses, 1\)](#)

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• [I Love You Like No Otter: A Funny And Sweet Board Book For Babies And Toddlers \(punderland\)](#)

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