



NEET

Chapter-wise & Topic-wise Solved Questions

38 YEARS
2025-1988

BIOLOGY

**EXTRA
PYQs**

From
2024 Re-NEET,
2023 Manipur
& More

**REVISION
FRIENDLY**

Highlighted must
Revise Questions
for Last time
Revision

**100%
VERIFIED**

100% Verified
From NTA
Answers
Keys

**NMC
UPDATED**

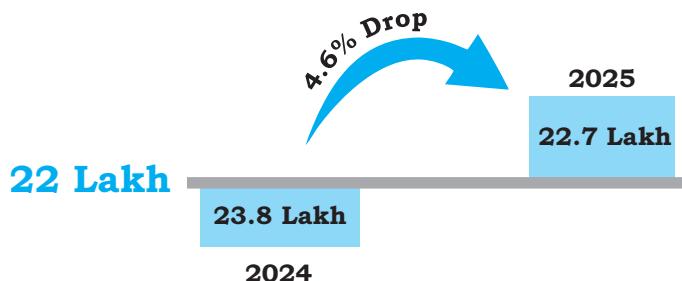
Updated as per
Latest NMC
syllabus

**NEW
TOPICS**

Practice
Questions for
Newly added
NEET Topics

NEET BLUEPRINT: ANALYZING PATTERNS FOR EXAM MASTERY

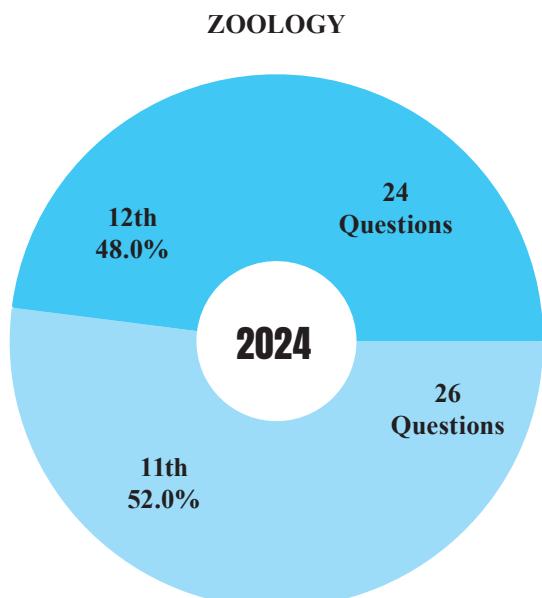
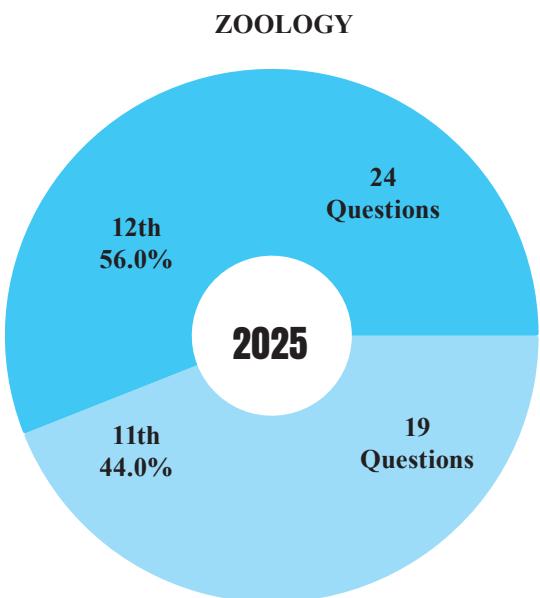
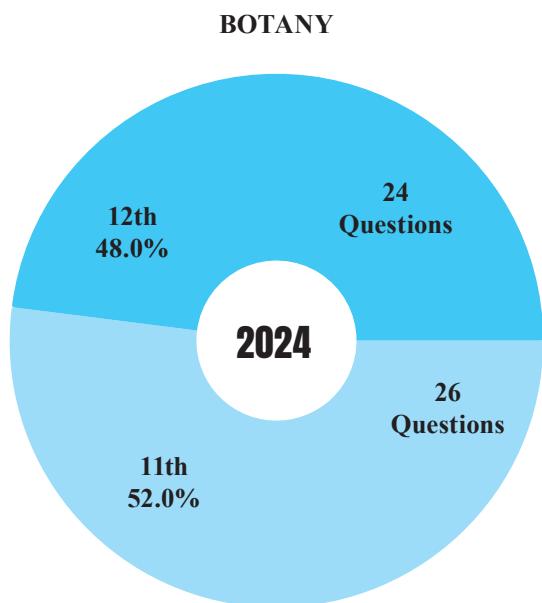
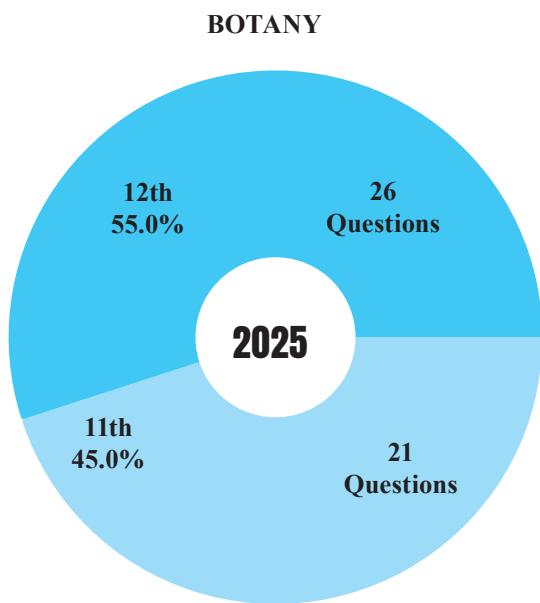
Registered Candidate Comparison



	2024	2025
Female		13.6 Lakh
Male		10.29 Lakh



Class-wise Comparison



YEAR WISE NUMBER OF QUESTIONS

Biology Class-XI

Chapters/Units' Name	Year Wise Number of Questions														
	2025	2024 Re	2024	2023	2023 Manipur	2022	2022 Re	2021	2020	2020 Covid	2019	2018	2017	2016 II	2016 I
The Living World	0	0	0	0	2	1	1	1	0	0	1	1	0	2	0
Biological Classification	1	1	2	0	0	2	2	1	1	1	2	5	3	3	5
Plant Kingdom	5	2	1	3	3	3	2	4	3	3	2	3	5	2	1
Animal Kingdom	4	4	3	4	2	2	2	4	4	4	2	3	4	1	4
Morphology of Flowering Plants	3	3	5	2	3	3	3	2	3	3	1	2	4	4	4
Anatomy of Flowering Plants	1	4	3	4	3	3	3	1	2	2	3	4	3	2	1
Structural Organisation in Animals	4	4	4	4	4	4	5	4	3	3	2	1	1	2	2
Unit – Cell : Structure and Functions	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cell: The Unit of Life	4	5	4	2	2	4	1	2	4	4	6	2	3	2	2
Biomolecules	4	6	6	3	4	3	6	4	4	2	3	1	2	3	1
Cell Cycle and Cell Division	1	3	4	6	5	4	5	5	4	4	2	1	3	3	2
Photosynthesis in Higher Plants	2	3	3	3	3	2	2	2	2	2	0	1	2	2	3
Respiration in Plants	1	2	2	2	2	3	3	1	1	1	2	2	1	2	0
Plant Growth and Development	2	3	3	3	3	3	3	3	3	3	2	0	1	1	1
Breathing and Exchange of Gases	0	2	3	3	3	2	2	2	2	2	0	1	2	2	3
Body Fluids and Circulation	1	2	2	2	2	2	2	2	2	2	2	2	2	1	1
Excretory Products and their Elimination	1	2	2	2	2	1	0	0	2	0	2	2	2	1	1
Locomotion and Movement	1	2	2	2	1	2	2	3	1	1	2	1	3	2	1
Neural Control and Coordination	0	1	2	2	2	1	2	0	1	1	2	3	2	1	1
Chemical Coordination and Integration	4	2	2	2	2	1	3	1	4	3	2	2	2	4	2

Contents Cum Topic Weightage

The following abbreviations have been used in the book:

[MR*] - Must Revise Questions

[OS] - Outside NCERT Questions

❖ NEET 2025 Solved Paper

i-xiv

Class-XI

1. The Living World 1-3

Number of Questions Asked in Past 11 Years	P. No.
0 What is Living?	1
3 Diversity in the Living World	1
4 Taxonomic Categories	2

2. Biological Classification 4-13

1 Introduction	4
11 Kingdom Monera	4
7 Kingdom Protista	6
10 Kingdom Fungi	7
0 Kingdom Plantae	8
1 Kingdom Animalia	8
7 Viruses, Viroids, Prions & Lichens	8

3. Plant Kingdom 14-24

0 Introduction	14
13 Algae	14
4 Bryophytes	16
7 Pteridophytes	17
13 Gymnosperms	18
4 Plant Life Cycles	20

4. Animal Kingdom 25-38

4 Basis of Classification	25
4 Porifera, Coelenterata, Ctenophora, Platyhelminthes, Aschelminthes	25
13 Annelida, Arthropoda, Mollusca, Echinodermata	27
10 Hemichordata and Chordata	29
6 Class Cyclostomata, Chondrichthyes, Osteichthyes	30
17 Class Amphibia, Reptilia, Aves, Mammalia	31

5. Morphology of Flowering Plants 39-48

5 The Root	39
4 The Stem	39
2 The Leaf	39
1 The Inflorescence	40
28 The Flower	40
3 The Fruit	42
2 The Seed	43
7 Description of Families-Fabaceae, Solanaceae, Liliaceae	43

6. Anatomy of Flowering Plants 49-58

1 Meristematic Tissues	49
13 Permanent Tissues	49
5 Tissue System	51
11 Anatomy of Dicot & Monocot Plants	52
13 Secondary Growth	53

7. Structural Organisation in Animals 59-69

18 Epithelial & Connective Tissue	59
7 Muscle Tissue & Neural Tissue	62
20 Cockroach	63
6 Frog	64

8. Cell: The Unit of Life 70-83

5 An Overview of Cell and Cell Theory	70
16 Prokaryotic Cells	70
0 Cell Membrane and Cell Wall	71
12 Endomembrane System	72
9 Mitochondria, Plastids, Ribosomes	74
3 Cytoskeleton, Cilia and Flagella, Centrosome and Centrioles	76
17 Nucleus and Microbodies	77

9. Biomolecules	84-95	8 Respiratory Volumes & Capacities	131
10 Analysis of Chemical Composition	84	8 Exchange and Transport of Gases	132
6 Primary & Secondary Metabolites	85	7 Regulation & Disorders of Respiratory System	133
8 Biomacromolecules, Proteins	86		
12 Polysaccharides, Nucleic Acids & Types of Bond	87		
18 Enzymes	89		
10. Cell Cycle and Cell Division	96-105	15. Body Fluids and Circulation	137-146
18 Cell Cycle	96	16 Blood and Lymph	137
13 Mitosis	97	13 Circulatory Pathways	140
16 Meiosis	99	4 Double Circulation & Regulation of Cardiac Activity	142
11. Photosynthesis in Higher Plants	106-115	1 Disorders of Circulatory System	142
0 Experiments of Photosynthesis	106		
8 Location & Pigments of Photosynthesis	106		
8 Light Reaction & Electron Transport	107		
8 Where are ATP & NADPH Used?	108		
10 C ₄ Pathway & Photorespiration	109		
1 Factors Affecting Photosynthesis	111		
12. Respiration in Plants	116-122	16. Excretory Products and their Elimination	147-153
0 Do Plants Breathe?	116	4 Excretory Organs, Human Excretory System	147
4 Glycolysis & Fermentation	116	7 Urine Formation, Function of Tubules	148
17 Aerobic Respiration	117	12 Mechanism of Concentration of Filtrate, Regulation of Kidney Functions, Micturition	149
3 Respiratory Balance Sheet & Amphibolic Pathway	119	2 Role of Other Organs and Excretory Disorders	151
1 Respiratory Quotient	119		
13. Plant Growth and Development	123-129	17. Locomotion and Movement	154-160
3 Growth	123	7 Types of Movement and Muscle	154
6 Differentiation, Dedifferentiation, Redifferentiation and Development	123	6 Skeletal System	155
24 Plant Growth Regulators	124	4 Joints	156
		9 Disorders of Muscular and Skeletal System	157
14. Breathing and Exchange of Gases	130-136	18. Neural Control and Coordination	161-164
0 Respiratory Organs	130	6 Neural System, Human Neural System and Neuron	161
1 Human Respiratory System	130	8 Central Nervous System	162
2 Mechanism of Breathing	130		
		19. Chemical Coordination and Integration	165-174
		0 Endocrine Glands and Hormones	165
		6 Hypothalamus, Pituitary Gland, Pineal Gland	165
		7 Thyroid, Parathyroid, Thymus	166
		11 Adrenal gland, Pancreas	167
		8 Testis, Ovary, Hormones of Heart, Kidney and GI Tract	168
		7 Mechanism of Hormone Action	170

Class-XII

1. Sexual Reproduction in Flowering Plants 177-187

Number of Questions Asked in Past 11 Years	P. No.
44 Flower and Pre-fertilisation	177
1 Double Fertilisation	181
21 Post Fertilisation	181
2 Apomixis and Polyembryony	182

2. Human Reproduction 188-198

3 Male Reproductive System	188
8 Female Reproductive System	188
13 Gametogenesis	189
9 Menstrual Cycle	191
13 Fertilisation and Implantation & Pregnancy and Embryonic Development	192
4 Parturition and Lactation	194

3. Reproductive Health 199-206

2 Reproductive Health Problems and Strategies	199
21 Population Stabilisation and Birth Control	199
10 Medical Termination of Pregnancy And Sexual Transmitted Diseases	202
6 Infertility	202

4. Principles of Inheritance and Variation 207-228

26 Mendel's Laws of Inheritance And Inheritance of One Gene	207
5 Inheritance of Two Genes	210
4 Chromosomal Theory of Inheritance	211
13 Linkage and Recombination, Polygenic Inheritance and Pleiotropy	212
4 Sex Determination And Mutation	213
24 Genetic Disorders	214

5. Molecular Basis of Inheritance 229-248

18 DNA	229
18 The Search For Genetic Material and RNA World	231
3 Replication	232

18 Transcription	233
15 Genetic Code	235
14 Translation	237
14 Regulation of Gene Expression	237
11 Human Genome Project And DNA Fingerprinting	239

6. Evolution 249-264

5 Origin of Life & Theories of Evolution	249
14 Evidences of Evolution	251
5 Adaptive Radiation	253
6 Biological Evolution And Mechanism of Evolution	254
9 Hardy-Weinberg Principle	255
2 Brief Account of Evolution	257
6 Human Evolution	257

7. Human Health and Diseases 265-278

17 Common Disease in Humans	265
20 Immunity	268
3 AIDS	271
5 Cancer	272
5 Drugs & Alcohol Abuse	272

8. Microbes in Human Welfare 279-286

18 Microbes in Household & Industrial Products	279
2 Microbes in Sewage Treatment	281
0 Microbes in Production of Biogas	281
4 Microbes as Biocontrol Agents & Biofertilisers	282

9. Biotechnology: Principles and Processes 287-298

6 Principles of Biotechnology	287
39 Tools of Recombinant DNA Technology	288
28 Processes of Recombinant DNA Technology	291

10. Biotechnology and Its Applications 299-307

17	Biotechnological Application in Agriculture	299
21	Biotechnological Application in Medicine	301
2	Transgenic Animals	303
6	Ethical Issues	304

11. Organisms and Populations 308-320

2	Major Biomes, Abiotic Factors and Responses to Abiotic Factors	308
5	Adaptations	309
16	Population Attributes, Population Growth and Life History Variation	310
25	Population Interactions	312

12. Ecosystem 321-327

5	Ecosystem-Structure And Function	321
8	Productivity	321
4	Decomposition	322
11	Energy Flow & Ecological Pyramids	323

13. Biodiversity and Conservation 328-336

8	Biodiversity & Patterns of Biodiversity	328
10	Importance & Loss of Biodiversity	329
23	Biodiversity Conservation	330

❖ New NEET Essentials 337-341

- The complex II of mitochondrial electron transport chain is also known as
 - Cytochrome bc_1
 - Succinate dehydrogenase
 - Cytochrome c oxidase
 - NADH dehydrogenase
- Polymerase chain reaction (PCR) amplifies DNA following the equation.
 - N^2
 - 2^n
 - $2n + 1$
 - $2N^2$
- What are the potential drawbacks in adoption of the IVF method?
 - High fatality risk to mother
 - Expensive instruments and reagents
 - Husband/wife necessary for being donors
 - Less adoption of orphans
 - Not available in India
 - Possibility that the early embryo does not survive

Choose the correct answer from the options given below:

 - B, D, F only
 - A, C, D, F only
 - A, B, C, D only
 - A, B, C, E, F only
- What is the name of the blood vessel that carries deoxygenated blood from the body to the heart in a frog?
 - Aorta
 - Pulmonary artery
 - Pulmonary vein
 - Vena cava
- Which one of the following statements refers to Reductionist Biology?
 - Physico-chemical approach to study and understand living organisms.
 - Physiological approach to study and understand living organisms.
 - Chemical approach to study and understand living organisms.
 - Behavioural approach to study and understand living organisms.
- Given below are two statements:

Statement I: In the RNA world, RNA is considered the first genetic material evolved to carry out essential life processes. RNA acts as a genetic material and also as a catalyst for some important biochemical reactions in living systems. Being reactive, RNA is unstable.

Statement II: DNA evolved from RNA and is a more stable genetic material. Its double helical strands being complementary, resist changes by evolving repairing mechanism.

In the light of the above statements, choose the **most appropriate** answer from the options given below:

- Both Statement I and Statement II are correct
- Both Statement I and Statement II are incorrect
- Statement I is correct but Statement II is incorrect
- Statement I is incorrect but Statement II is correct

- Epiphytes that are growing on a mango branch is an example of which of the following?
 - Commensalism
 - Mutualism
 - Predation
 - Amensalism
- From the statements given below choose the **correct** option:
 - The eukaryotic ribosomes are 80S and prokaryotic ribosomes are 70S.
 - Each ribosome has two sub-units.
 - The two sub-units of 80S ribosome are 60S and 40S while that of 70S are 50S and 30S.
 - The two sub-units of 80S ribosome are 60S and 20S and that of 70S are 50S and 20S.
 - The two sub-units of 80S are 60S and 30S and that of 70S are 50S and 30S.
 - A, B, C are true
 - A, B, D are true
 - A, B, E are true
 - B, D, E are true
- Which one of the following is an example of ex-situ conservation?
 - National Park
 - Wildlife Sanctuary
 - Zoos and botanical gardens
 - Protected areas
- Given below are two statements:

Statement I: The primary source of energy in an ecosystem is solar energy.

Statement II: The rate of production of organic matter during photosynthesis in an ecosystem is called net primary productivity (NPP).

In the light of the above statements, choose the **most appropriate** answer from the options given below:

 - Both Statement I and Statement II are correct
 - Both Statement I and Statement II are incorrect
 - Statement I is correct but Statement II is incorrect
 - Statement I is incorrect but Statement II is correct

23. Which of following organisms *cannot* fix nitrogen?

A. *Azotobacter* B. *Oscillatoria* C. *Anabaena*
D. *Volvox* E. *Nostoc*

Choose the **correct** answer from the options given below:

a. A only b. D only c. B only d. E only

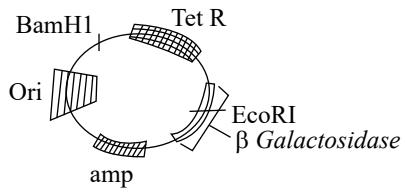
24. Given below are two statements:

Statement I: Transfer RNAs and ribosomal RNA do not interact with mRNA.

Statement II: RNA interference (RNAi) takes place in all eukaryotic organisms as a method of cellular defence.

In the light of the above statements, choose the **most appropriate** answer from the options given below:

a. Both Statement I and Statement II are correct
b. Both Statement I and Statement II are incorrect
c. Statement I is correct but Statement II is incorrect
d. Statement I is incorrect but Statement II is correct

25. 

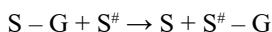
In the above represented plasmid an alien piece of DNA is inserted at EcoRI site. Which of the following strategies will be chosen to select the recombinant colonies?

a. Using ampicillin & tetracycline containing medium plate
b. Blue color colonies will be selected
c. White color colonies will be selected
d. Blue color colonies grown on ampicillin plates can be selected

26. Which of the following genetically engineered organisms was used by Eli Lilly to prepare human insulin?

a. Bacterium b. Yeast c. Virus d. Phage

27. Name the class of enzyme that usually catalyze the following reaction:



Where, G → a group other than hydrogen

S → a substrate

S[#] → another substrate

a. Hydrolase b. Lyase
c. Transferase d. Ligase

28. Find the statement that is **NOT** correct with regard to the structure of monocot stem.

a. Hypodermis is parenchymatous.
b. Vascular bundles are scattered.
c. Vascular bundles are conjoint and closed.
d. Phloem parenchyma is absent.

29. The correct sequence of events in the life cycle of bryophytes is:

A. Fusion of antherozoid with egg.
B. Attachment of gametophyte to substratum.
C. Reduction division to produce haploid spores.
D. Formation of sporophyte.
E. Release of antherozoids into water.

Choose the **correct** answer from the options given below:

a. D, E, A, C, B b. B, E, A, C, D
c. B, E, A, D, C d. D, E, A, B, C

30. Which are correct:

A. Computed tomography and magnetic resonance imaging detect cancers of internal organs.
B. Chemotherapeutics drugs are used to kill non-cancerous cells.
C. α -interferon activates the cancer patients' immune system and helps in destroying the tumour.
D. Chemotherapeutic drugs are biological response modifiers.
E. In the case of leukaemia, blood cell counts are decreased.

Choose the **correct** answer from the options given below:

a. B and D only b. D and E only
c. C and D only d. A and C only

31. Match List-I with List-II.

	List-I		List-II
A.	Centromere	I.	Mitochondrion
B.	Cilium	II.	Cell division
C.	Cristae	III.	Cell movement
D.	Cell membrane	IV.	Phospholipid Bilayer

Choose the **correct** answer from the options given below:

a. A-I, B-II, C-III, D-IV b. A-II, B-I, C-IV, D-III
c. A-IV, B-II, C-III, D-I d. A-II, B-III, C-I, D-IV

32. Match List-I with List-II:

	List-I		List-II
A.	Chlorophyll a	I.	Yellow-green
B.	Chlorophyll b	II.	Yellow
C.	Xanthophylls	III.	Blue-green
D.	Carotenoids	IV.	Yellow to Yellow-orange

Choose the option with all **correct** matches:

a. A-III, B-IV, C-II, D-I b. A-III, B-I, C-II, D-IV
c. A-I, B-II, C-IV, D-III d. A-I, B-IV, C-III, D-II

33. Find the correct statements:

A. In human pregnancy, the major organ systems are formed at the end of 12 weeks.
B. In human pregnancy, the major organ systems are formed at the end of 8 weeks.
C. In human pregnancy heart is formed after one month of gestation.
D. In human pregnancy, limbs and digits develop by the end of second month.
E. In human pregnancy the appearance of hair is usually observed in the fifth month.

Choose the **correct** answer from the options given below:

a. A and E Only b. B and C Only
c. B, C, D and E Only d. A, C, D and E Only

34. In the seeds of cereals, the outer covering of endosperm separates the embryo by a protein-rich layer called:

a. Coleoptile b. Coleorrhiza
c. Integument d. Aleurone layer

83. Read the following statements on plant growth and development.

- A. Parthenocarpy can be induced by auxins.
- B. Plant growth regulators can be involved in promotion as well as inhibition of growth.
- C. Dedifferentiation is a pre-requisite for re-differentiation.
- D. Abscisic acid is a plant growth promoter.
- E. Apical dominance promotes the growth of lateral buds.

Choose the option with all correct statements:

- a. A, B, C only
- b. A, C, E only
- c. A, D, E only
- d. B, D, E only

84. Which factor is important for termination of transcription?

- a. α (alpha)
- b. σ (sigma)
- c. ρ (rho)
- d. γ (gamma)

85. Frogs respire in water by skin and buccal cavity and on land by skin, buccal cavity and lungs.

Choose the **correct** answer from the following:

- a. The statement is true for water but false for land
- b. The statement is true for both the environment
- c. The statement is false for water but true for land
- d. The statement is false for both the environment

86. Twins are born to a family that lives next door to you. The twins are a boy and a girl. Which of the following must be true?

- a. They are monozygotic twins.
- b. They are fraternal twins.
- c. They were conceived through in vitro fertilization.
- d. They have 75% identical genetic content.

87. Which of the following microbes is NOT involved in the preparation of household products?

- A. *Aspergillus niger*
- B. *Lactobacillus*
- C. *Trichoderma polysporum*
- D. *Saccharomyces cerevisiae*
- E. *Propionibacterium shermanii*

Choose the **correct** answer from the options given below:

- a. A and B only
- b. A and C only
- c. C and D only
- d. C and E only

88. Match List-I with List-II:

	List-I		List-II
A.	Progesterone	I.	Pars intermedia
B.	Relaxin	II.	Ovary
C.	Melanocyte stimulating hormone	III.	Adrenal Medulla
D.	Catecholamines	IV.	Corpus luteum

Choose the **correct** answer from the options given below:

- a. A-IV, B-II, C-I, D-III
- b. A-IV, B-II, C-III, D-I
- c. A-II, B-IV, C-I, D-III
- d. A-III, B-II, C-IV, D-I

89. The blue and white selectable markers have been developed which differentiate recombinant colonies from non-recombinant colonies on the basis of their ability to produce colour in the presence of a chromogenic substrate.

Given below are two statements about this method:

Statement I: The blue coloured colonies have DNA insert in the plasmid and they are identified as recombinant colonies.

Statement II: The colonies without blue colour have DNA insert in the plasmid and are identified as recombinant colonies.

In the light of the above statements, choose the **most appropriate** answer from the options given below:

- a. Both Statement I and Statement II are correct
- b. Both Statement I and Statement II are incorrect
- c. Statement I is correct but Statement II is incorrect
- d. Statement I is incorrect but Statement II is correct

90. Which one of the following equations represents the Verhulst-Pearl Logistic Growth of population?

- a. $\frac{dN}{dt} = r \left(\frac{K - N}{K} \right)$
- b. $\frac{dN}{dt} = rN \left(\frac{K - N}{K} \right)$
- c. $\frac{dN}{dt} = rN \left(\frac{N - K}{N} \right)$
- d. $\frac{dN}{dt} = N \left(\frac{r - K}{K} \right)$

Answer Key

1. (b)	2. (b)	3. (a)	4. (d)	5. (a)	6. (a)	7. (a)	8. (a)	9. (c)	10. (c)
11. (d)	12. (b)	13. (c)	14. (d)	15. (d)	16. (c)	17. (d)	18. (d)	19. (b)	20. (a)
21. (a)	22. (a)	23. (b)	24. (d)	25. (c)	26. (a)	27. (c)	28. (a)	29. (c)	30. (d)
31. (d)	32. (b)	33. (d)	34. (d)	35. (b)	36. (d)	37. (c)	38. (a)	39. (b)	40. (b)
41. (d)	42. (b)	43. (b)	44. (c)	45. (b)	46. (a)	47. (c)	48. (a)	49. (d)	50. (b)
51. (a)	52. (a)	53. (c)	54. (a)	55. (c)	56. (a)	57. (b)	58. (d)	59. (c)	60. (d)
61. (a)	62. (a)	63. (a)	64. (c)	65. (c)	66. (d)	67. (b)	68. (a)	69. (b)	70. (b)
71. (b)	72. (b)	73. (a)	74. (b)	75. (b)	76. (b)	77. (b)	78. (b)	79. (d)	80. (c)
81. (d)	82. (a)	83. (a)	84. (c)	85. (c)	86. (b)	87. (a)	88. (a)	89. (d)	90. (b)

Explanations

1. (b) NCERT XI, Ch-Respiration in Plants, Page-160

Complex II of the mitochondrial electron transport chain is also known as succinate dehydrogenase. It catalyzes the oxidation of succinate to fumarate, generating FADH₂, which then donates electrons to ubiquinone, contributing to the formation of reduced ubiquinol. This process links the citric acid cycle and the electron transport chain.

2. (b) NCERT XII, Ch-Biotechnology: Principles and Processes, Page-172

Polymerase Chain Reaction (PCR) amplifies DNA exponentially. In each cycle, the number of DNA molecule doubles, so after n cycles, the number of DNA copies is 2ⁿ times the initial amount.

3. (a) NCERT XII, Ch-Reproductive Health, Page-48

The main drawbacks of adoption of IVF methods include high costs due to expensive instruments and reagents (B), reduced rates of orphan adoption (D), and a significant possibility that the early embryo may not survive (F), reducing the success rates.

IVF has a relatively low fatality risk with modern techniques.

Donor sperm/eggs can be used; husband/wife are not always necessary.

IVF is available in India at various public and private centres.

4. (d) NCERT XI, Ch-Structural Organisation in Animals, Page-82

In frogs, the vena cava is the blood vessel that brings deoxygenated blood from various parts of the body to the heart, specifically into the right atrium.

Aorta carries oxygenated blood away from the heart.

Pulmonary artery carries deoxygenated blood from the heart to the lungs.

Pulmonary vein carries oxygenated blood from lungs to the heart.

5. (a) NCERT XI, Unit-Cell: Structure and Functions, Page-85

Reductionist biology refers to the approach of studying living organisms and their processes by breaking them down into their smaller, more fundamental components, like cells, molecules, and genes and analyzing their physical and chemical properties. This approach has led to significant advances in fields like molecular biology and biochemistry, enabling a deeper understanding of biological processes.

6. (a) NCERT XII, Ch-Molecular Basis of Inheritance, Page-88

Statement I is correct :

In the RNA world hypothesis, RNA is considered the first genetic material that evolved to carry out essential life processes. RNA acts as both genetic material and a catalyst for biochemical reactions in living systems. Also, RNA being reactive and unstable is widely accepted in the context of its role in early life forms.

Statement II is correct:

DNA evolved from RNA, providing a more stable and secure means of storing genetic information. Its double-helical strands are complementary and resistant to changes due to the evolving repair mechanisms.

7. (a) NCERT XII, Ch-Organisms and Populations, Page-201

Epiphytes growing on a mango branch exhibit commensalism. In this relationship, the epiphytes benefit by gaining physical support and access to sunlight while the mango tree is neither harmed nor benefited.

Mutualism: Both organisms benefit from each other.

Predation: One organism benefits at the expense of another.

Amensalism: One organism is harmed, while the other remains unaffected.

8. (a) NCERT XI, Ch-Cell: The Unit of Life, Page-98

Statement A is correct: Eukaryotic ribosomes are 80S, and prokaryotic ribosomes are 70S.

Statement B is correct: Each ribosome consists of two subunits (larger and smaller).

Statement C is correct: The subunits of 80S ribosomes are 60S and 40S, while that of 70S ribosomes are 50S and 30S.

9. (c) NCERT XII, Ch-Biodiversity and Conservation, Page-225

Zoos and botanical gardens are examples of *ex-situ* conservation, where threatened species are taken out from their natural habitat and placed in special settings where they can be protected and given special care.

National parks, wildlife sanctuary and protected areas are examples of *in-situ* conservation, where species are protected within their natural habitat.

10. (c) NCERT XII, Ch-Ecosystem, Page-207

Statement I is correct: Solar energy is the primary source of energy in an ecosystem, as it is the fundamental energy source for photosynthesis.

Statement II is incorrect: The rate of production of organic matter during photosynthesis is often referred to as gross primary productivity (GPP) of an ecosystem, not net primary productivity (NPP). NPP is the available biomass for the consumption to heterotrophs.

11. (d) NCERT XI, Ch-Breathing and Exchange of Gases, Body Fluids and Circulation, Excretory Products and their Elimination, Locomotion and Movement, Page-190, 203, 214, 227

(A-II) Emphysema: It is a chronic respiratory disorder involving damaged alveolar walls and decreased respiratory surface.

(B-III) Angina Pectoris: This condition involves acute chest pain when not enough oxygen is reaching the heart muscle.

(C-IV) Glomerulonephritis: This condition is the inflammation of glomeruli of the kidney.

(D-I) Tetany: This condition is characterized by rapid spasms (wild contractions) in muscle due to low Ca²⁺ in body fluid.

12. (b) NCERT XII, Ch-Sexual Reproduction in Flowering Plants, Page-13

Assertion (A) is true: Both wind and water pollinated flowers are not very colourful and do not produce nectar.

Reason (R) is also true: Both wind and water pollinated flowers produce large quantities of pollen to increase the chances of successful pollination.

However, reason does not explain the assertion. Wind and water pollinated flowers are not very colourful and do not produce nectar because these flowers do not need to attract pollinators.

13. (c) NCERT XII, Ch-Microbes in Human Welfare, Page-152

Beer is a non-distilled alcoholic beverage produced by fermentation with the help of yeast *Saccharomyces cerevisiae*.

Whisky, Brandy, and Rum are distilled alcoholic beverages. After fermentation, these drinks undergo a distillation process to increase alcohol content.

Introduction

- Five kingdom system of classification suggested by R.H. Whittaker is not based on [MR*] (2014)
 - Complexity of body organisation
 - Presence or absence of a well defined nucleus
 - Mode of reproduction
 - Mode of nutrition
- In the five-kingdom classification, *Chlamydomonas* and *Chlorella* have been included in: (2012 Mains)
 - Protista
 - Algae
 - Plantae
 - Monera
- In which kingdom would you classify the archaea and nitrogen-fixing organisms, if the five-kingdom system of classification is used? (2003)
 - Plantae
 - Fungi
 - Protista
 - Monera
- In five kingdom system, the main basis of classification: (2002)
 - Structure of nucleus
 - Mode of nutrition
 - Structure of cell wall
 - Asexual reproduction
- According to five kingdom system, blue green algae belongs to: (1998)
 - Metaphyta
 - Monera
 - Protista
 - Algae
- An important criterion of modern day classification is: (1991)
 - Resemblances in morphology
 - Anatomical and physiological traits
 - Breeding habits
 - Presence or absence of notochord

Kingdom Monera

- Which of the following is a correct statement? [MR*] (2022)
 - Mycoplasma have DNA, Ribosome and cell wall
 - Cyanobacteria are a group of autotrophic organisms classified under Kingdom Monera
 - Bacteria are exclusively heterotrophic organisms
 - Slime moulds are saprophytic organisms classified under Kingdom Monera.

- Which of the following is incorrect about Cyanobacteria? [MR*] (2020-Covid)
 - They lack heterocysts
 - They often form blooms in polluted water bodies
 - They have chlorophyll 'a' similar to green plants
 - They are photoautotrophs
- Oxygen is not produced during photosynthesis by (2018)
 - Nostoc*
 - Green sulphur bacteria
 - Cycas*
 - Chara*
- Which of the following are found in extreme saline conditions? (2017-Delhi)
 - Archaeabacteria
 - Eubacteria
 - Cyanobacteria
 - Mycobacteria
- Which among the following are the smallest living cells, known without a definite cell wall, pathogenic to plants as well as animals and can survive without oxygen? (2017-Delhi)
 - Bacillus*
 - Pseudomonas*
 - Mycoplasma
 - Nostoc*
- Methanogens belong to: (2016 - II)
 - Dinoflagellates
 - Slime moulds
 - Eubacteria
 - Archaeabacteria
- Which one of the following statements is wrong? [MR*] (2016 - I)
 - Cyanobacteria are also called blue-green algae
 - Golden algae are also called desmids
 - Eubacteria are also called false bacteria
 - Phycomycetes are also called algal fungi
- The primitive prokaryotes responsible for the production of biogas from the dung of ruminant animals, include the: (2016 - I)
 - Halophiles
 - Thermoacidophiles
 - Methanogens
 - Eubacteria
- True nucleus is absent in: (2015)
 - Vaucheria*
 - Volvox*
 - Anabaena*
 - Mucor*
- The gut of cow and buffalo possess: (2015)
 - Methanogens
 - Cyanobacteria
 - Fucus*
 - Chlorella*

39. BGA (blue green algae) are included in which of the following groups? (1996)

- Bryophytes
- Prokaryotes
- Protista
- Fungi

40. *Azotobacter* and *Bacillus polymyxa* are the examples of: (1996)

- Pathogenic bacteria
- Decomposers
- Symbiotic N₂ fixer
- Non-symbiotic N₂ fixer

41. Which are the sex organs provided in some bacteria? (1996)

- Sex pili
- Plasmid
- Circular DNA
- Gametes

42. Which type of DNA is found in bacteria? (1996)

- Circular free DNA
- Membrane bound DNA
- Straight DNA
- Helical DNA

43. The tailed bacteriophages are: [OS] (1995)

- Motile on surface of bacteria
- Non-motile
- Motile on surface of plant leaves
- Actively motile in water

44. A large number of organic compounds can be decomposed by: [OS] (1995)

- Azotobacter*
- Chemolithotrophs
- Mycoplasma*
- Pseudomonas*

45. Organisms, which fix atmospheric nitrogen in the soil, fall under the category of: (1994)

- Bacteria
- Green algae
- Soil fungi
- Mosses

46. Transduction in bacteria is mediated by: [OS] (1994)

- Plasmid vectors
- Phage vectors
- Cosmids
- F-factors

47. Genophore/bacterial genome or nucleoid is made of: (1993)

- Histones and non-histones
- RNA and histones
- A single double stranded DNA
- A single stranded DNA

48. *Escherichia coli* is used extensively in biological research as it is: (1993)

- Easily cultured
- Easily available
- Easy to handle
- Easily multiplied in host

49. Bacteria lack alternation of generation because there is: [OS] (1992, 1991)

- Neither syngamy nor reduction division
- Distinct chromosomes are absent
- No conjugation
- No exchange of genetic material

50. Name the organisms which do not derive energy directly or indirectly from sun: (1991)

- Chemosynthetic bacteria
- Pathogenic bacteria
- Symbiotic bacteria
- Mould

51. Which one belongs to Monera? (1990)

- Amoeba*
- Escherichia*
- Gelidium*
- Spirogyra*

52. Many blue-green algae occur in thermal springs (hot water springs). The temperature tolerance of these algae have been attributed to their: (1994)

- Mitochondrial structure
- Importance of homopolar bonds in their proteins
- Cell wall structure
- Modern cell organisation

Kingdom Protista

53. Match List-I with List-II: (2024 Re)

List-I Organisms		List-II Mode of nutrition	
(A)	<i>Euglenoid</i>	(I)	Parasitic
(B)	<i>Dinoflagellate</i>	(II)	Saprophytic
(C)	<i>Slime mould</i>	(III)	Photosynthetic
(D)	<i>Plasmodium</i>	(IV)	Switching between photosynthetic and heterotrophic mode

Choose the **correct** answer from the options given below:

- A-III, B-IV, C-II, D-I
- A-IV, B-II, C-I, D-III
- A-IV, B-III, C-II, D-I
- A-IV, B-II, C-III, D-I

54. Select the **wrong** statement [MR*] (2018)

- Cell wall is present in members of Fungi and Plantae
- Mushrooms belong to Basidiomycetes
- Pseudopodia are locomotory and feeding structures in Sporozoans
- Mitochondria are the powerhouse of the cell in all kingdoms except Monera

55. Which of the following organisms are known as chief producers in the oceans? [MR*] (2018)

- Dinoflagellates
- Diatoms
- Cyanobacteria
- Euglenoids

56. Ciliates differ from all other protozoans in (2018)

- Using flagella for locomotion
- Having a contractile vacuole for removing excess water
- Using pseudopodia for capturing prey
- Having two types of nuclei

57. Select the wrong statement: (2016 - II)

- Diatoms are chief producers in the oceans
- Diatoms are microscopic and float passively in water
- The walls of diatoms are easily destructible
- 'Diatomaceous earth' is formed by the cell wall of diatoms.

58. Chrysophytes, Euglenoids, Dinoflagellates and Slime moulds are included in the kingdom: (2016 - I)

- Animalia
- Monera
- Protista
- Fungi

115. Which one of the following statements about viruses is correct? (2003)

- Viruses possess their own metabolic system
- All viruses contain both RNA and DNA
- Viruses are obligate parasites
- Nucleic acid of viruses is known as capsid

116. Cauliflower mosaic virus contains: [OS] (2001)

- ss RNA
- ds RNA
- ds DNA
- ss DNA

117. Virus are living because: (2000)

- They multiply in host cells
- Carry anaerobic respiration
- Carry metabolic activity
- Cause infection

118. Which disease of man is similar with cattle's, bovine spongiform encephalopathy? [OS] (2000)

- Encephalitis
- Jacob-creutzfeldt disease
- Spongiosis of cerebrum
- Spondylitis

119. Lichens can be used as: (1999)

- Bio-indicator for water and air pollution
- Initial vegetation for waste lands
- Source of wood
- To check the air pollution

120. Indicator of water pollution: [OS] (1998)

- E. coli*
- Chlorella*
- Beggiaotoa*
- Ulothrix*

121. Viruses posses: (1997)

- Ribosomes to synthesize protein
- Organelle for its vital mechanism
- Either DNA or RNA
- None of these

122. Most of the lichens consist of: (1997)

- Green algae and Ascomycetes
- Brown algae and higher plant
- Blue green algae and Basidiomycetes
- Red algae and Ascomycetes

123. What is the genetic material in *Influenza virus*? [OS] (1996)

- Double helical DNA
- RNA
- Single helix DNA
- None of these

124. Which one of the following statement about lichens is wrong? (1996)

- These grow very rapidly (2 cm per day)
- They show fungal and algal symbiotic relationships
- Some of its species are eaten by reindeers
- These are pollution indicators

125. Tobacco mosaic virus (TMV) genes are: (1994)

- Single stranded RNA
- Double stranded DNA
- Proteinaceous
- Double stranded RNA

126. Organisms which are indicator of SO_2 pollution of air: [MR*] (1992)

- Mosses
- Lichens
- Mushrooms
- Puffballs

127. Lichens indicate SO_2 pollution because they: (1989)

- Show association between algae and fungi
- Grow faster than others
- Are sensitive to SO_2
- Flourish in SO_2 rich environment

128. Rickettsia form a group under: (1994)

- Viruses
- Bacteria
- Fungi
- A category between viruses and bacteria

Answer Key

1. (b)	2. (a)	3. (d)	4. (b)	5. (b)	6. (b)	7. (b)	8. (a)	9. (b)	10. (a)
11. (c)	12. (d)	13. (c)	14. (c)	15. (c)	16. (a)	17. (b)	18. (b)	19. (a)	20. (a)
21. (a)	22. (d)	23. (b)	24. (c)	25. (c)	26. (c)	27. (d)	28. (c)	29. (d)	30. (c)
31. (a)	32. (b)	33. (a)	34. (d)	35. (b)	36. (b)	37. (a)	38. (b)	39. (b)	40. (d)
41. (a)	42. (a)	43. (b)	44. (d)	45. (a)	46. (b)	47. (c)	48. (a)	49. (a)	50. (a)
51. (b)	52. (b)	53. (c)	54. (c)	55. (b)	56. (d)	57. (c)	58. (c)	59. (d)	60. (a)
61. (b)	62. (c)	63. (d)	64. (c)	65. (a)	66. (b)	67. (b)	68. (a)	69. (a)	70. (d)
71. (c)	72. (b)	73. (d)	74. (c)	75. (a)	76. (d)	77. (c)	78. (d)	79. (a)	80. (d)
81. (b)	82. (d)	83. (c)	84. (d)	85. (c)	86. (a)	87. (c)	88. (b)	89. (c)	90. (c)
91. (c)	92. (c)	93. (a)	94. (a)	95. (c)	96. (d)	97. (d)	98. (d)	99. (d)	100. (b)
101. (a)	102. (c)	103. (d)	104. (c)	105. (a)	106. (d)	107. (b)	108. (a)	109. (a)	110. (b)
111. (d)	112. (c)	113. (d)	114. (c)	115. (c)	116. (c)	117. (a)	118. (b)	119. (d)	120. (a)
121. (c)	122. (a)	123. (b)	124. (a)	125. (a)	126. (b)	127. (c)	128. (b)		

Explanations

1. (b) Main criteria for classification used by R.H. Whittaker includes cell structure, body organisation, mode of nutrition, reproduction and phylogenetic relationship.
2. (a) *Chlamydomonas* and *Chlorella* are green-algae that belong to kingdom Plantae, division Algae and class Chlorophyceae. In five-kingdom classification, they were placed in kingdom Protista.
3. (d) According to five-kingdom classification, all prokaryotic cells have been classified under kingdom Monera.
4. (b) Mode of nutrition is one of the main criteria for classification used by R.H. Whittaker. Other criteria include cells structure, body organisation, reproduction and phylogenetic relationships.
5. (b) Cyanobacteria (blue-green algae) being unicellular and prokaryotic belong to kingdom Monera of five-kingdom classification given by R. H. Whittaker.
6. (b) Modern day classification is based on not only the morphological but also physiological, anatomical, reproductive and phylogenetic similarities.
7. (b) Only statement (b) is correct and rest other statements are incorrect. Mycoplasma is a bacterium that lacks cell wall. Mycoplasma have DNA and ribosomes. Cyanobacteria are photosynthetic bacteria classified under kingdom Monera. Bacteria can be photosynthetic autotrophic or chemosynthetic autotrophic. The vast majority of bacteria are heterotrophs, i.e., they depend on other organisms or on dead organic matter for food. Slime moulds are saprophytic organisms classified under Kingdom Protista.
8. (a) Cyanobacteria (also referred to as blue-green algae) have chlorophyll *a* similar to green plants and are photosynthetic autotrophs. Some of these organisms can fix atmospheric nitrogen in specialised cells called heterocysts, e.g., *Nostoc* and *Anabaena*.
9. (b) Green sulphur bacteria perform anoxygenic photo-synthesis. They mainly use sulfide ions as electron donors.
10. (a) Archaeabacteria are special since they live in some of the most harsh habitats such as extreme salty areas (halophiles), hot springs (thermoacidophiles) and marshy areas (methanogens).
11. (c) Mycoplasmas are organisms without a cell wall. They are the smallest living cells known. They can survive without oxygen. Many are pathogenic in animals and plants.
12. (d) Methanogens belong to Archaeabacteria and are present in the gut of several ruminant animals such as cows and buffaloes and they are responsible for the production of methane (biogas) from the dung of these animals.
13. (c) Eubacteria are also known as true bacteria. They are characterised by the presence of a rigid cell wall, and if motile, a flagellum.
14. (c) Methanogens are present in the gut of several ruminant animals such as cows and buffaloes and they are responsible for the production of methane (biogas) from the dung of these animals.
15. (c) *Vaucheria* and *Volvox* are eukaryotes (Plant kingdom) while *Mucor* is a fungi (phycomycetes) and a eukaryote but *Anabaena* is a prokaryote. Prokaryotes lack nucleus.
16. (a) Some of the methanogens (archaeabacteria) live as symbionts (e.g., *Methanobacterium*) inside rumen of cow, buffaloes and helpful to the ruminants in fermentation of cellulose.
17. (b) Mycoplasma are organisms that completely lack cell wall. They are the smallest living cells known and can survive without oxygen.
18. (b) One of the most distinctive features of the *Archaea* is the nature of their membrane lipids. They differ from both *Bacteria* and *Eukarya* in having branched chain hydrocarbons attached to glycerol by ether links rather than fatty acids connected by ester links. Some archaeal membranes are lipid monolayers instead of bilayers.
19. (a) Nuclear membrane is absent in *Nostoc* (prokaryote) while remaining three are eukaryotes.
20. (a) The Cyanobacteria are also referred to as blue-green algae (BGA). It belongs to Eubacteria.
21. (a) Heterotrophic bacteria are the most abundant in nature. The majority are important decomposers. Many of them have a significant impact on human affairs. They are helpful in making curd from milk, production of antibiotics, fixing nitrogen in legume roots.
22. (d) Monerans have maximum nutritional diversity as some of them are autotrophs, heterotrophs, saprophytes, parasitic, symbiotic (*Anabaena*), commensalism & mutualism.
23. (b) Bacterial membranes are similar to eukaryotic membranes in that many of their amphipathic lipids are phospholipids.
24. (c) Methanogens are archaeabacteria, found in marshy areas. They are present in the gut of several ruminant animals.
25. (c) *Chlorobium* (Green sulphur bacteria), *Rhodospirillum* (purple non-sulphur bacteria), *Chromatium* perform anoxygenic photosynthesis.
26. (c) Protein of Archaeabacteria closely resembles the eukaryotic cell in the mechanism of protein synthesis, structural protein and RNA compliments
- of the ribosomes. *Thermococcus*, *Methanococcus* and *Methanobacterium* are archaeabacteria.
27. (d) It is primitive prokaryote. Its ribosomal ribonucleotides in 16S rRNA are different from other organisms.
28. (c) They are insensitive to Penicillin due to absence of cell wall while their growth is inhibited by the tetracycline.
29. (d) Bacterium *Clostridium botulinum* is obligate anaerobe means they cannot survive in the presence of oxygen.
30. (c) Barophilic prokaryotes are organisms that survives in a high-pressure environment. They can grow and multiply in very deep marine sediments.
31. (a) Transduction is one of the methods of introduction of foreign gene into a cell. In this method, virus is used to transfer genes from one cell/bacterium to another cell/bacterium.
32. (b) Autotrophs are organisms who produces their own food. They can be photoautotrophs or chemoautotrophs. Organisms who synthesise their own food by deriving energy from sunlight are called photoautotroph, whereas organisms that derive energy from inorganic compounds to synthesise food are called chemoautotrophs.
33. (a) Cyanobacteria are capable of fixing atmospheric N₂ in presence of sunlight. Nitrogenase, enzyme complex that is responsible for fixing N₂ in cyanobacteria, is sensitive to oxygen & require a near to anoxic environment. These bacteria can produce oxygen through photosynthesis and thus called oxygenic.
34. (d) Archaeabacteria are oldest bacteria that live in some of the most harsh habitats. They have a different cell wall structure than other bacteria and this feature is responsible for their survival in extreme conditions.
35. (b) Photolithotrophs utilise light energy, with the inorganic compound serving as the ultimate electron donor, e.g., higher plants.
36. (b) Thermophiles live in a habitat where temperature exceeds 100°C and therefore these bacteria can survive in hot springs.
37. (a) Bacteriophage is a virus that infect bacteria. During this infection, these viruses transfer the genetic material from one bacterium to another, a process called transduction.
38. (b) *E. coli* has genetic material in the form of DNA. Two strands of DNA are helically bound to each other and form a complete DNA molecule.
39. (b) Blue-green algae are unicellular organisms classified in kingdom Monera. Individuals belongs to Monera have prokaryotic cells & thus they are called prokaryotes.

New NEET Essentials

Morphology of Flowering Plants (Malvaceae, Cruciferae, Compositae and Gramineae)

1. Which of the following shows the floral characteristic of Cruciferae?

- a. Six tepals, zygomorphic, six stamens, bilocular ovary, axile placentation.
- b. Hermaphrodite, actinomorphic, tetrodynamous, hypogynous, bicarpellary, bilocular (replum), placentation parietal.
- c. Bisexual, actinomorphic, six stamens, polyandrous, superior ovary, axile placentation.
- d. Three tepals, bisexual, zygomorphic, gamophyllous, inferior ovary, marginal placentation.

2. **Assertion:** In the Gramineae family, the two bracts are palea and lemma enclose flower.

Reason: In the Gramineae family, the gynoecium is tricarpellary with inferior ovary.

- a. Both Assertion and Reason are True, and the Reason is a correct explanation of the Assertion.
- b. Both Assertion and Reason are True, but Reason is not a correct explanation of the Assertion.
- c. Assertion is True, but the Reason is False.
- d. Assertion is False, but the Reason is True.

3. Complete the floral formula of the family Malvaceae.

$$\text{Br} \oplus \text{Epi} \square \text{K} \square \text{C} \square \text{A} \square \text{G}_{(5-\infty)}$$

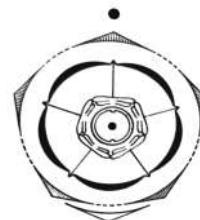
(i) (ii) (iii) (iv)

- a. (i) – 3, (ii) – 5, (iii) – 5, (iv) – 3
- b. (i) – 3 – 7, (ii) – (5), (iii) – 5, (iv) – (∞)
- c. (i) – 3 – 5, (ii) – 3, (iii) – (5), (iv) – (2 – ∞)
- d. (i) – 3, (ii) – 5, (iii) – (3), (iv) – 2

4. Which family exhibits actinomorphic, pedicellate, bisexual, complete, pentamerous flowers, typically protected by an epicalyx?

- a. Malvaceae
- b. Cruciferae
- c. Compositae
- d. Gramineae

5. Identify the correct statement about the diagram.



- a. The flower of this family consists of a capitulum or head.
- b. The flower of this family consists of a free anther but fused filaments.
- c. The flower of this family lacks pappus.
- d. The flower of this family consists gynoecium of bilocular basal placentation.

6. Identify the plant family from the floral diagram given below.



- a. Malvaceae
- b. Cruciferae
- c. Gramineae
- d. Leguminosae

7. Mark the following statements as true (T) or false (F) and select the correct option.

- I. In mustard, filaments of stamens are of similar lengths.
- II. In Cruciferae, the outer two stamens are short, and the inner four stamens are long.
- III. The fruit of the china rose is a capsule.
- IV. Marigold, sunflower, and *Chrysanthemum* are members of the family Malvaceae.

	I	II	III	IV
(a)	False	True	True	False
(b)	True	False	True	False
(c)	False	False	False	True
(d)	True	True	False	True

8. Statement-I: In the Asteraceae family within the capitulum, there are ray florets at the center, surrounded by disc florets.
Statement-II: Disc Florets are present in the centre of the head, bracteate, bisexual, actinomorphic, tubular, pentamerous.

- Both Statement-I and Statement-II are correct.
- Both Statement-I and Statement-II are incorrect.
- Statement-I is correct & Statement-II is incorrect.
- Statement-I is incorrect & Statement-II is correct.

9. Match the characteristics to the correct plants:

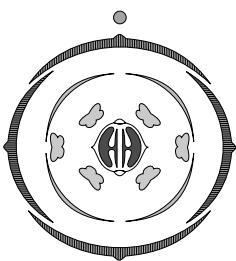
	Characteristics	Plant
P	Zygomorphic, bisexual flowers with basal placentation.	Sunflower
Q	Actinomorphic, pentamerous, bisexual flowers protected by epicalyx.	China rose
		Okra
		Wheat

- P- Okra ; Q- Sunflower
- P- Wheat; Q- China rose
- P- China rose; Q- Okra
- P- Sunflower, Q- China rose

10. What distinct feature allows the immediate identification of the Brassicaceae family?

- Inferior ovary and cruciform corolla
- Tetradynamous stamens and replum
- Tetradynamous stamens and axile placentation
- Cruciform corolla and indehiscent fruit

11. Choose the correct floral formula for the given diagram.



- $\oplus \frac{\emptyset}{\emptyset} K_{2+2} C_4 A_{2+4} G_{(2)}$
- $\% \frac{\emptyset}{\emptyset} K_{(5)} C_{1+2+(2)} A_{(9)+1} G_1$
- $\oplus \frac{\emptyset}{\emptyset} K_{(5)} C_{(5)} \overbrace{A_{(5)}} G_{(2)}$
- $Br \oplus \frac{\emptyset}{\emptyset} P_{(3+3)} \overbrace{A_{3+3}} G_{(3)}$

12. Familiar example of family Compositae is

- Helianthus annuus*, *Artemisia annua*, *Tagetes erecta*
- Pennisetum typhoideum*, *Bambusa*, and *Atropa belladonna*
- Allium cepa*, *Saccharum officinarum*, and *Aloe vera*
- Allium cepa*, *Pennisetum typhoideum* and *Solanum nigrum*

13. Which of the following plants also show similar inflorescence as shown in the given image?



- Indigofera*, *Sesbania*, *Brassica rapa*, Sunhemp
- Ashwagandha*, *Petunia*, *Sesbania*, *Colchicum autumnale*
- Indigofera*, *Ashwagandha*, Sunhemp, *Trifolium*
- Trifolium*, *Petunia*, *Brassica rapa*, *Colchicum autumnale*

14. Which of the following plant is bisexual, syncarpous, superior ovary, actinomorphic, parietal placentation, tap root system, variation in the length of filaments within a flower?

- Mustard
- Sweet pea
- Soyabean
- Moong

15. Which of the following statements is correct about the given image?



- The image shows the fruit of the Leguminosae family.
- The image shows the fruit of the *Hibiscus* or mallow family.
- The image shows the fruit of the sunflower family.
- The image shows the fruit of the mustard family.



NEET

Chapter-wise & Topic-wise Solved Questions

38 YEARS
2025–1988

PHYSICS

**EXTRA
PYQs**

From
2024 Re-NEET,
2023 Manipur
& More

**REVISION
FRIENDLY**

Highlighted must
Revise Questions
for Last time
Revision

**100%
VERIFIED**

100% Verified
From NTA
Answers
Keys

**NMC
UPDATED**

Updated as per
Latest NMC
syllabus

**NEW
TOPICS**

Practice
Questions for
Newly added
NEET Topics

Contents Cum Topic Weightage

The following abbreviations have been used in the book:

[MR[★]] - Must Revise Questions [OS] - Outside NCERT Questions

❖ NEET 2025 Solved Paper

i-x

Class-XI

1. Units and Measurements

1-7

Number of Questions Asked in Past 11 Years

P. No.

2 Systems of Units

1

6 Dimensions of Physical Quantities

1

5 Application of Dimensions

2

6 Errors

3

3 Significant Figures

4

5 Measuring Instruments

4

2. Motion in a Straight Line

8-15

6 Distance, Displacement, Speed and Velocity

8

2 Acceleration

9

3 Graphs

10

3 Motion under Gravity

10

1 Relative Motion in 1-D

11

3. Motion in a Plane

16-24

3 Vectors

16

3 Motion in a Plane with Constant Acceleration

17

7 Projectile Motion

18

2 Relative Velocity in 2-D

19

2 Uniform Circular Motion

20

4. Laws of Motion

25-37

2 Equation of Motion and Newton's Laws of Motion

25

5 Motion of Connected Bodies

26

8 Conservation of Momentum and Impulse Momentum Theory

27

1. Units and Measurements

1-7

8	Friction	29
7	Circular Motion, Banking of Road	30

5. Work, Energy and Power

38-49

2	Work Done	38
3	Energy and Conservation of Mechanical Energy	39
3	Spring	40
3	Work Energy Theorem	40
4	Power	41
6	Vertical Circle	42
3	Collision	43

6. System of Particles and Rotational Motion

50-64

6	Centre of Mass and Motion of Centre of Mass	50
5	Angular Displacement, Velocity and Acceleration	51
11	Moment of Inertia, Theorem of Parallel and Perpendicular Axis and Energy in Rotation	52
12	Torque, Angular Momentum and its Conservation	54
5	Rolling Motion	56

7. Gravitation

65-74

3	Kelper's Laws and Dynamics of Planetary Motion	65
5	Newton's Law of Gravitation & Acceleration Due to Gravity	65
6	Variation in g Due to Altitude, Depth and other Factors	67
4	Gravitational Intensity, Potential and Potential Energy	67
9	Satellite, Orbital Velocity and Escape Velocity	68
1	Weightlessness	69

8. Mechanical Properties of Solids	75-76	93-97	
5 Stress, Strain and Young's Modulus	75	8 Ideal Gas Equations and Vander Waals Relation	93
2 Bulk Modulus and Shear Modulus	75	2 Pressure Exerted by an Ideal Gas and its Kinetic Energy	94
9. Mechanical Properties of Fluids	77-80	5 Speed of Gas Molecules	94
5 Variation of Pressure with Depth and Pascal's Law	77	2 Variation of Pressure with Depth and Pascal's Law	95
3 Bernoulli's Theorem and its Application	77	3 Specific and Molar Heat Capacity of Gases	95
8 Surface Tension and Surface Energy	78	2 Mean Free Path	96
4 Angle of Contacts and Ascent/Descent Formula	78		
5 Viscosity, Stoke's Law and Terminal Velocity	78		
10. Thermal Properties of Matter	81-86	13. Oscillations	98-109
3 Heat and Temperature Scales	81	13 Periodic Motion, Superposition of Waves, Displacement, Velocity, Phase, Acceleration in SHM	98
5 Thermal Expansion	81	2 Energy in SHM (P.E., K.E. and T.E.)	100
3 Specific Heat, Latent Heat and Calorimetry	81	8 Simple Pendulum and Loaded Springs	101
1 Heat Transfer and Thermal Conductivity	82	0 Damped Oscillations and Forced Oscillations	103
4 Kirchhoff's Law and Black Body	83		
11. Thermodynamics	87-92	14. Waves	110-121
15 Thermodynamic Processes and First Law of Thermodynamics	87	0 Mechanical Waves, Progressive and Stationary Waves; Intensity and Speed of Sound	110
0 Second Law of Thermodynamics	90	1 Superposition of Waves, Interference and Reflection of Wave	112
		13 Vibration of String and Organ Pipe	112
		2 Beats	114
		3 Musical Sound	115
1. Electric Charges and Fields	125-131	Class-XII	
Number of Questions Asked in Past 10 Years	P. No.		
4 Coulomb's Law	125	3 Potential Gradient and Electric Field	134
7 Electric Field and Relation Between Electric Intensity and Force	126	1 Electrostatics Potential Energy and Potential Energy of Dipole in Electric Field	134
4 Electric Dipole, Dipole Moment	127	1 Electrostatics of Conductors	135
0 Potential Difference, Potential Energy and Work Done	127	7 Capacitance and Parallel Plate Capacitor	135
5 Electric Flux and Gauss's Law	127	4 Effect of Dielectric on Capacitance and Polarization	135
		6 Grouping of Capacitors	136
		4 Energy Stored in a Capacitor and Loss of Energy on Sharing Charges	137
2. Electrostatic Potential and Capacitance	132-143	3. Current Electricity	144-161
7 Electric Potential	132	0 Current and Motion of Charges	144
3 Potential Difference and Work Done	133	10 Ohm's Law Resistance and Resistivity	144

5	Resistance and Conductance	145
7	Combination of Resistance	146
5	Internal Resistance of a Cell and Grouping	147
6	Kirchhoff's Law	148
4	Wheatstone and Meter Bridge	150
3	Electrical Power	151
4	Electric Energy and Heating of Current	153

4. Moving Charges and Magnetism 162-174

5	Biot Savart's Law and Magnetic Field Due to Current Through the Straight Conductor	162
3	Magnetic Field in Circular Coil	163
6	Magnetic Field Due to Current Through Both Straight Wire and Circular Wire (Mixed Figure)	164
3	Ampere's Circuital Law	164
2	Magnetic Field Due to Solenoid and Toroid	164
5	Motion of Charged Particle in (i) Electric Field and (ii) Magnetic Field	165
2	Force in the Presence of Magnetic Field, Lorentz Force and Cyclotron	166
1	Torque on a Current Loop	168
1	Galvanometer	168
0	Conversion of Galvanometer into (a) Ammeter and (b) Voltmeter	168
5	Magnetic Moment	169

5. Magnetism and Matter 175-179

1	Magnetic Dipole Moment, and Force Between Magnetic Poles	175
0	Torque Acting on Axis of a Solenoid	175
2	Torque Acting on a Magnetic Dipole and Potential Energy of Dipole in a Magnetic Field	176
0	Miscellaneous (Work Done by External Force in Magnetic Field and Vibration Magnetometer)	176
5	Magnetic Properties of Materials	176
0	Curie Law and Hysteresis Curve	177

6. Electromagnetic Induction 180-186

7	Magnetic Flux, Faraday's Law of E.M.F.	180
1	Lenz's Law	181
4	Motional E.M.F.	182

1	Eddy Currents	182
1	Self Induction	182
1	Energy Stored or Work Done in Inductor	183
2	Mutual Induction	183

7. Alternating Current 187-195

2	Mean Value and Virtual Value of A.C.	187
0	Self Inductance	187
4	A.C. Circuit Containing Capacitance Only	187
5	A.C. Circuit Containing R and L Only	188
1	A.C. Circuit Containing R and C Only	189
7	A.C. Circuit Containing R, L and C	189
3	Electric Resonance	189
1	Energy Stored in Condenser, Inductor and LC Oscillations	190
5	Average Power and Power Associated with A.C. Circuits and Power Factor	190
2	Transformer	191

8. Electromagnetic Waves 196-200

3	Displacement Current, Ampere Maxwell's Law	196
13	Properties and Applications (i.e. Velocity, Amplitude, Energy Density) of Electromagnetic Waves	196
4	Electromagnetic Spectrum	198
2	Effects of Dielectrics in Capacitors	199
0	Signals and Communication	199

9. Ray Optics and Optical Instruments 201-213

0	Photometry	201
3	Reflection of Light and Spherical Mirrors	201
3	Laws of Refraction; Refractive Index	201
3	Refraction Through Glass Slab and Lateral Shift	202
1	Real and Apparent Depths	202
4	Total Internal Reflection and Critical Angle	202
1	Refraction at Spherical Surfaces	204

2	Lens Formula and Lens Maker's Formula	204
7	Combination of Lenses	204
5	Refraction Through Prism and Dispersion Through Prism	205
2	Natural Phenomenon	206
1	Simple and Compound Microscope	206
3	Telescope	206
0	Resolving Power of Lens	207
2	Miscellaneous	207

10. Wave Optics 214-219

0	Huygen's Wave Theory	214
1	Intensities of Maxima and Minima	214
10	Interference and Young's Double Slit Experiment	214
5	Diffraction of Light From a Narrow Slit	215
6	Polarization Phenomenon, Law of Malus and Brewster's Law	216
0	Various Parameters of EM Waves Due to Refraction	217
0	Miscellaneous	217

11. Dual Nature of Radiation and Matter 220-230

13	Photoelectric Effect	220
1	Unit Conversion	223
13	Wave Nature of Matter (De-Broglie Wavelength)	223
3	Parameters of Photon (Momentum, Pressure and Energy)	225
1	Davisson and Germer Experiment	225

12. Atoms 231-237

2	Alpha-Particle Scattering and Rutherford's Nuclear Model of Atom (Distance of Closest Approach and Impact Parameter, Electron Orbits)	231
16	Bohr H-atom Model, Radius of Orbit, Velocity and Energy of Electrons, Wavelengths of Hydrogen Spectrum and Ionisation Potential	231
3	De-Broglie's Explanation of Bohr's Second Postulate of Quantisation	234
0	X-Ray	234

13. Nuclei 238-245

3	Atomic Nucleus, Its Size, Density and Weight	238
1	Mass Energy, Nuclear Binding Energy and Nuclear Force	238
8	Radioactive Decay Law, Half-Life and Average Life and Activity of a Radioactive Substance	239
3	Nuclear Reactions	241
0	Nuclear Fission and Nuclear Fusion	242

14. Semiconductor Electronics 246-261

1	Energy Band in Solids and Basics of Semiconductor	246
4	Intrinsic and Extrinsic Semiconductor (P and N types)	246
7	P-N Junction Diode (forward and reverse bias), Diffusion and Drift Current	247
1	Characteristics of P-N Junction	249
3	Diode as a Rectifier	250
3	Zener Diode	250
1	Optoelectronic Devices	250
0	Transistor	251
15	Digital Electronics and Logic Gates	251
0	Integrated Circuit	255

15. Experimental Skills 262-265



NEET

Chapter-wise & Topic-wise Solved Questions

38 YEARS
2025-1988

CHEMISTRY

**EXTRA
PYQs**

From
2024 Re-NEET,
2023 Manipur
& More

**REVISION
FRIENDLY**

Highlighted must
Revise Questions
for Last time
Revision

**100%
VERIFIED**

100% Verified
From NTA
Answers
Keys

**NMC
UPDATED**

Updated as per
Latest NMC
syllabus

**NEW
TOPICS**

Practice
Questions for
Newly added
NEET Topics

Contents Cum Topic Weightage

The following abbreviations have been used in the book:

[MR[★]] - Must Revise Questions [OS] - Outside NCERT Questions

❖ NEET 2025 Solved Paper

i-x

Class-XI

1. Some Basic Concepts of Chemistry 1-8

Number of Questions Asked in Past 11 Years		P. No.
2	Significant Figures, Laws of Chemical Combinations	1
1	Atomic and Molecular Masses	1
9	Mole Concept and Molar Masses	1
2	Percentage Composition, Empirical & Molecular Formula	2
6	Stoichiometry and Stoichiometric Calculations	3
2	Concentration Terms	3

2. Structure of Atom 9-17

2	Subatomic Particles, Atomic Models	9
4	Developments Leading to Bohr's Model of Atom	9
4	Bohr's Model For Hydrogen Atom	10
0	Towards Quantum Mechanical Model of The Atom	10
16	Quantum Mechanical Model of Atom	11
0	Nuclear Chemistry	13

3. Classification of Elements and Periodicity in Properties 18-22

2	Modern Periodic Law, Nomenclature of Elements	18
3	Electronic Configurations and Types of Elements (s, p, d and f-Blocks)	18
15	Periodic Trends in Properties of Elements	18

4. Chemical Bonding and Molecular Structure 23-38

2	Covalent Bond, Electrovalent Bond, Lattice Enthalpy and Octet Rule	23
10	Bond Parameters and Dipole Moment	24

14	VSEPR Theory	25
7	Valence Bond Theory, Hybridisation	27
10	MOT, Bonding in Some Homonuclear Diatomic Molecules	28
2	Hydrogen Bonding	30

5. Thermodynamics 39-48

1	Thermodynamic Terms	39
9	Measurement of ΔU & ΔH , Work Done and Heat Capacity	39
2	Enthalpy Change, ΔH of Reaction	40
5	Enthalpies For Different Types of Reactions	41
8	Spontaneity, Entropy, Gibbs Energy Change and Equilibrium	42
1	Clausius Clapeyron Equation	44

6. Equilibrium 49-64

9	Law of Chemical Equilibrium, Equilibrium Const. and Its Application	49
9	Relation Between K, Q and G , Factors Affecting Equilibria	51
2	Acids, Bases and Salts	52
10	Ionization of Acids & Bases, pH Scale, Hydrolysis	53
4	Buffer Solutions	55
10	Solubility Equilibria of Sparingly Soluble Salts	55

7. Redox Reactions 65-68

8	Redox Reactions (Oxidation and Reduction), Oxidation Number	65
5	Types of Redox Reactions and Balancing of Redox Reactions	66
0	Redox Reactions and Electrode Processes	66

8. The p-Block Elements 69-73

6	Group 13 Elements (Boron Family)	69
4	Compounds of Boron, Uses of B & Al and Their Compounds	69
5	Group 14 Elements (Carbon Family)	70
2	Allotropes of Carbon	70
2	Some Important Compounds of C & Si	71

9. Organic Chemistry-Some Basic Principles and Techniques 74-84

6	Tetravalence of Carbon (Shapes of Organic Compounds)	74
---	--	----

6	Classification, Nomenclature of Organic Compounds	75
---	---	----

2	Isomerism	76
---	-----------	----

16	Fundamental Concepts of Organic Reactions	77
----	---	----

12	Methods of Purification, Qualitative and Quantitative Analysis of Organic Compounds	79
----	---	----

10. Hydrocarbons 85-98

12	Alkanes	85
18	Alkenes	86
6	Alkynes	89
8	Aromatic Hydrocarbons	90

Class-XII

1. Solutions 101-109

Number of Questions Asked in Past 11 Years		P. No.
5	Types of Solutions & Expressing Concentration of Solutions	101
3	Solubility	101
3	Vapour Pressure of Liquid Solutions	102
6	Ideal and Non-Ideal Solutions	102
9	Colligative Properties and Determination of Molar Mass	103
4	Abnormal Molar Mass	104

11	Temperature Dependence of the Rate of a Reaction & Effect of Catalysts	124
----	--	-----

2	Collision Theory of Chemical Reactions	125
---	--	-----

4. The p-Block Elements (Group 15 to 18) 131-143

11	Group 15 Elements (Nitrogen family)	131
11	Group 16 Elements (Oxygen Family)	133
11	Group 17 Elements (Halogens)	134
9	Group 18 Elements (Noble Gases)	136

2. Electrochemistry 110-119

4	Electrochemical and Galvanic Cells	110
11	Nernst Equation	111
6	Conductance of Electrolytic Solutions	113
6	Electrolytic Cells and Electrolysis	114
4	Batteries, Fuel Cells and Corrosion	115

5. The d-and f-Block Elements 144-153

15	Transition Elements (d-Block)	144
8	Compounds of Transition Elements	147
15	Inner Transition Elements (Lanthanoids and Actinoids)	147

6. Coordination Compounds 154-165

11	Introduction and Werner's Theory of Coordination Compounds	154
7	Nomenclature & Isomerism in Coordination Compounds	155
15	Bonding in Coordination Compounds	156
4	Bonding in Metal Carbonyls	158
0	Applications of Coordination Compounds	159

3. Chemical Kinetics 120-130

4	Rate of Chemical Reactions	120
4	Factors Influencing Rate of a Reaction & Order of Reaction	121
14	Integrated Rate Equation & Half Life of Reactions	122

7. Haloalkanes and Haloarenes**166-173**

2	Classification of Organohalogen Compounds, Nature of C-X Bond	166
13	Haloalkanes and Chemical Reactions of Haloalkanes	166
5	Stereochemical Aspects of Nucleophilic Substitution Reactions	168
4	Haloarenes and Chemical Reactions of Haloarenes	169
0	Polyhalogen Compounds	170

8. Alcohols, Phenols and Ethers**174-184**

13	Alcohols	174
10	Phenols	176
8	Ethers	178

9. Aldehydes, Ketones and Carboxylic Acids**185-203**

8	Preparation of Aldehydes and Ketones	185
21	Physical Properties and Chemical Reactions of Aldehydes and Ketones	187
3	Methods of Preparation of Carboxylic Acids	192
12	Physical Properties and Chemical Reactions of Carboxylic Acids	192

10. Amines**204-213**

6	Preparation of Amines	204
14	Physical & Chemical Properties of Amines	204
8	Diazonium Salt (Preparation, Physical & Chemical Properties)	207
2	Nitrobenzene (Preparation and Properties)	208

11. Biomolecules**214-221**

8	Carbohydrates	214
5	Proteins	215
5	Enzymes and Vitamins	216
3	Nucleic Acids	217
0	Hormones	218

12. Principles Related to Practical Chemistry**222-227**

Complete Your Preparation

