

BIRLA VIDYAMANDIR, NAINITAL
Syllabus for Screening Examination – 2017
Class – 12

ENGLISH

Reading Skills

1. Two passages/poem for Comprehension exercise.
2. One passage for Note making.

Writing Skills

1. One question (short answer)
2. One question (longer answer)
3. Two questions (long answer)

(Questions to be asked from the skills prescribed eg advertisement, poster, report, letter to the editor, formal letters, speech etc.)

Literary Text

1. 4 very short answer questions from the given text.
2. 4 short answer questions of three marks each.
3. 4 long answer questions of six marks each.

(Questions to be based on prescribed text books i.e. Flamingo, Vistas and The Invisible Man)

MATHEMATICS

1. Relation and Function
2. Inverse Trigonometric Function
3. Matrices and Determinants
4. Continuity
5. Differentiation
6. Application of Derivatives
7. Indefinite Integral
8. Definite Integral
9. Area under the curve
10. Differential Equation
11. Vector and three Dimensional geometry
12. Linear Programming
13. Probability

PHYSICS

1. Electrostatics
2. Current electricity
3. Magnetic effect of current and magnetism
4. Electromagnetic induction and alternating current
5. Electromagnetic waves
6. Optics
7. Dual nature of matter
8. Atoms and nuclei
9. Electronic devices
10. Communication system

CHEMISTRY

1. Solid state
2. Solutions
3. Electrochemistry
4. Chemical kinetics
5. Surface chemistry
6. General principles of isolation of metals
7. p- block elements
8. d&f block elements

9. Co ordination compounds
10. Haloalkanes and haloarenes
11. Alcohol phenol and ether
13. Aldehydes ketones and carboxylic acids
14. Amines
15. Polymers
16. Bio- Molecules
17. Chemistry in every day life.

BIOLOGY

Unit1. Reproduction

1. Reproduction in organisms: Reproduction, a characteristic feature of all organisms for continuation of species; Asexual reproduction Modes of reproduction-Asexual and sexual reproduction; Modes-Binary fission, sporulation, budding, gemmule, fragmentation; vegetative propagation in plants.

2. Sexual reproduction in flowering plants: Flower structure; Development of male and female gametophytes; Pollination-types, agencies and examples; Outbreedings devices; Pollen-Pistil interaction; Double fertilization; Post fertilization events-Development of endosperm and embryo, Development of seed and formation of fruit; Special modes-apomixis, parthenocarpy, polyembryony; Significance of seed and fruit formation.

3. Human Reproduction: Male and female reproductive systems; Microscopic anatomy of testis and ovary; Gametogenesis-spermatogenesis & oogenesis; Menstrual cycle; Fertilisation embryo development up to blastocyst formation, implantation; Pregnancy and placenta formation (Elementary idea); Parturition (elementary idea); Lactation (Elementary idea).

4. Reproductive health: Need for reproductive health and prevention of sexually transmitted diseases (STD); Birth control – Need and Methods, Contraception and Medical Termination of Pregnancy (MTP); Amniocentesis; Infertility and assisted reproductive technologies – IVF, ZIFT, GIFT (Elementary idea for general awareness).

Unit II. Genetics and Evolution

5. Heredity and variation: Mendelian Inheritance; Deviations from Mendelism-Incomplete dominance, Co-dominance, Multiple alleles and Inheritance of blood groups, Pleiotropy; Elementary idea of polygenic inheritance; Chromosome theory of inheritance; Chromosomes and genes; Sex determination - in humans, birds, honey bee; Linkage and crossing over; Sex linked inheritance - Haemophilia, Colour blindness; Mendelian disorder in humans - Thalassaemia; chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes.

6. Molecular Basis of Inheritance: Search for genetic material and DNA as genetic material; Structure of DNA and RNA; DNA packaging; DNA replication; Central dogma; Transcription, genetic code, translation; Gene expression and regulation - Lac Operon; Genome and human genome project; DNA finger printing.

7. Evolution: Origin of life; Biological evolution and evidences for biological evolution (Paleontological, comparative anatomy, embryology and molecular evidence); Darwin's contribution, Modern Synthetic theory of Evolution; Mechanism of evolution - Variation (Mutation and Recombination) and Natural Selection with examples, types of natural selection; Gene flow and genetic drift; Hardy - Weinberg's principle; Adaptive Radiation; Human evolution.

Unit III. Biology and Human Welfare

8. Human Health and Disease: Pathogens; parasites causing human diseases (Malaria, Filariasis, Ascariasis, Typhoid, Pneumonia, common cold, amoebiasis, ring worm); Basic concepts of immunology - vaccines; Cancer, HIV and AIDS; Adolescence, drug and alcohol abuse.

9. Strategies for Enhancement in food production: Plant breeding, tissue culture, single cell protein, Biofortification, Apiculture and Animal husbandry.

10. Microbes in human welfare: In household food processing, industrial production, sewage treatment, energy generation and as biocontrol agents and biofertilisers.

Unit IV. Biotechnology and Its Applications

11. Principles and process of Biotechnology: Genetic engineering (Recombinant DNA technology).

12. Biotechnology and its Applications: Application of Biotechnology in health and agriculture: Human insulin and vaccine production, gene therapy; Genetically modified organisms-Bt crops; Transgenic Animals; Biosafety issues, Biopiracy and patents.

Unit V. Ecology and Environment

13. Organisms and environment: Habitat and niche, Population and ecological adaptations; Population interactions-mutualism, competition, predation, parasitism; Population attributes growth, birth rate and death rate, age distribution.

14. Ecosystems: Patterns, components; productivity and decomposition; Energy flow; Pyramids of number, biomass, energy; Nutrient cycling (carbon and phosphorous); Ecological succession; Ecological Services-Carbon fixation, pollination, oxygen release.

15. Biodiversity and its conservation: Concept of Biodiversity; Patterns of Biodiversity; Importance of Biodiversity; Loss of Biodiversity; Biodiversity conservation; Hotspots, endangered organisms, extinction, Red Data Book, biosphere reserves, National parks and sanctuaries.

16. Environmental issues: Air pollution and its control; Water pollution and its control; Agrochemicals and their effects; Solid waste management; radioactive waste management; Greenhouse effect and global warming; Ozone depletion; Deforestation; Any three case studies as success stories addressing environmental issues.

INFORMATICS PRACTICES

Unit 1: Networking and Open Standards

Computer Networking

Networking, Communication Media, Network Devices, Types of network, Network Topologies, Network Protocols, Remote access, Identifying computers and users over a network, Network Security, Internet Applications, Wireless/Mobile Communication.

Open Source Concepts

Open Source Software (OSS), Open standards, Indian Language Computing, Types of fonts

Unit 2: Programming

Review of Class XI; Programming Fundamentals

Classes & Objects, Libraries - String class methods, Math class methods, JDBC

Web application development concepts, HTML tags, Introduction to XML

Unit 3: Relational Database Management System

Review of RDBMS from Class XI Database Fundamentals & MySQL commands

Database transaction, GROUP BY clause and Group functions, Constraints, Joins

Unit 4: IT Applications

Review of Class XI; IT Applications

Front-end Interface, Back-end Database, Front-end interface and Back-end Database connectivity for e-Governance, e-Business and e-Learning applications

Based on Q. No. 1 to 7 of the Model Question Paper

PHYSICAL EDUCATION

- Unit 1. Planning in Sports
- Unit 2. Sports and Nutrition
- Unit 3. Yoga and Lifestyle
- Unit 4. Physical Education and Sports for Differently Abled
- Unit 5. Children and Sports
- Unit 6. Women and Sports
- Unit 7. Test and Measurement in Sports
- Unit 8. Physiology in sports
- Unit 9. Sports Medicine
- Unit 10. Kinesiology, Biomechanics and Sports
- Unit 11. Psychology and Sports
- Unit 12. Training in Sports

ACCOUNTANCY

- Part A **Accounting for Partnership Firms and Companies**
Unit 1. Accounting for Partnership Firms
Unit 2. Accounting for Companies
- Part B **Financial Statement Analysis**
Unit 3. Analysis of Financial Statements
Unit 4. Cash Flow Statement
- Part C **Project Work**
OR
- Part B **Computerized Accounting**
Unit 3. Computerized Accounting
- Part C **Practical Work**

BUSINESS STUDIES

- Unit 1. Nature & Significance of Management (+)
Unit 2. Principles of Management (+)
Unit 3. Business Environment
Unit 4. Planning (+)
Unit 5. Organizing
Unit 6. Staffing (+)
Unit 7. Directing (+)
Unit 8. Controlling
Unit 9. Financial Management (+)
Unit 10. Financial Market
Unit 11. Marketing Management (+)
Unit 12. Consumer Protection

ECONOMICS

SECTION 'A' Introductory Microeconomics

- Unit 1. Introduction.
Unit 2. Consumers's Equilibrium and Demand.
Unit 3. Producer's Behaviour and Supply.
Unit 4. Forms of Market and Price Determination under Perfect Competition with simple applications.

SECTION 'B' Introductory Macroeconomics

- Unit 5. National Income and related aggregates.
Unit 6. Money and Banking.
Unit 7. Determination of Income & Employment.
Unit 8. Government Budget and the economy.
Unit 9. Balance of Payments.

ENTREPRENEURSHIP

S.No. Unit

1. Entrepreneurial Opportunities
2. Entrepreneurial Planning
3. Enterprise Marketing
4. Enterprise Growth Strategies
5. Business Arithmetic
6. Resource Mobilizations