OSWAAL BOOKS
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Strictly based on the latest CBSE curriculum issued on 15th March, 2018 for Academic Year 2018-19

For MARCH 2019

CBSE SOLVED PAPER 2018

BIOLOGY

CLASS 12

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Latest Syllabus for Academic Year 2018-19

Biology, Class-12 (Code No. 044)

Time : 3 Hours **Max. Marks : 70**

Unit	Title	No. of Periods	Marks
VI	Reproduction	30	14
VII	Genetics and Evolution	40	18
VIII	Biology and Human Welfare	30	14
IX	Biotechnology and its Applications	30	10
X	Ecology and Environment	30	14
	Total	**160**	**70**

UNIT - VI : REPRODUCTION — 30 periods

Chapter-1 : Reproduction in Organisms

Reproduction, a characteristic feature of all organisms for continuation of species; modes of reproduction–asexual and sexual reproduction; asexual reproduction–binary fission, sporulation, budding, gemmule formation, fragmentation; vegetative propagation in plants.

Chapter-2 : Sexual Reproduction in Flowering Plants

Flower structure; development of male and female gametophytes; pollination–types, agencies and examples; outbreeding 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 dispersal and fruit formation.

Chapter-3 : Human Reproduction

Male and female reproductive systems; microscopic anatomy of testis and ovary; gametogenesis–spermatogenesis and orogenesis; menstrual cycle; fertilisation, embryo development upto blastocyst formation, implantation; pregnancy and placenta formation (elementary idea); parturition (elementary idea); lactation (elementary idea).

Chapter-4 : Reproductive Health

Need for reproductive health and prevention of Sexually Transmitted Diseases (STDs); 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 - VII : GENETICS AND EVOLUTION — 40 Periods

Chapter-5 : Principles of Inheritance and Variation

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 and honey bee; linkage and crossing over; sex linked 106 inheritance–haemophilia, colour blindness; Mendelian disorders in humans - thalassemia; chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes.

Chapter-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 and rice genome projects; DNA fingerprinting.

Chapter-7 : Evolution

Origin of life; biological evolution and evidences for biological evolution (paleontology, comparative anatomy, embryology and molecular evidences); 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 - VIII : BIOLOGY AND HUMAN WELFARE — 30 Periods

Chapter-8 : Human Health and Diseases

Pathogens; parasites causing human diseases (malaria, dengue, chickengunia, filariasis, ascariasis, typhoid, pneumonia, common cold, amoebiasis, ring worm) and their control; Basic concepts of immunology - vaccines; cancer, HIV and AIDS; Adolescence - drug and alcohol abuse.

Chapter-9 : Strategies for Enhancement in Food Production

Improvement in food production : Plant breeding, tissue culture, single cell protein, Biofortification, Apiculture and Animal husbandry.

Chapter-10 : Microbes in Human Welfare

In household food processing, industrial production, sewage treatment, energy generation and microbes as biocontrol agents and biofertilizers. Antibiotics; production and judicious use.

UNIT - IX : BIOTECHNOLOGY AND ITS APPLICATIONS — 30 Periods

Chapter-11: Biotechnology–Principles and processes

Genetic Engineering (Recombinant DNA Technology).

Chapter-12 : Biotechnology and its Application

Application of biotechnology in health and agriculture: Human insulin and vaccine production, stem cell technology, gene therapy; genetically modified organisms - Bt crops; transgenic animals; biosafety issues, bio piracy and patents.

UNIT - X : ECOLOGY AND ENVIRONMENT — 30 Periods

Chapter-13 : Organisms and Populations

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.

Chapter-14 : Ecosystem

Ecosystems : Patterns, components; productivity and decomposition; energy flow; pyramids of number, biomass, energy; nutrient cycles (carbon and phosphorous); ecological succession; ecological services - carbon fixation, pollination, seed dispersal, oxygen release (in brief).

Chapter-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, sanctuaries and Ramsar sites.

Chapter-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 climate change; ozone layer depletion; deforestation; any one case study as success story addressing environmental issue(s).

PRACTICALS

Time : 3 Hours **Max. Marks : 30**

Evaluation Solution	
One Major Experiment Part - A (Expt. No. 5, 6, 8, 9)	5 marks
One Minor Experiment Part - A (Expt. No. 2, 3, 4)	4 marks
Slide Preparation Part - A (Expt. No. 1, 7)	5 marks
Spotting	7 marks
Practical Record + Viva Voce	4 marks
Project Record + Viva voce	5 marks
Total	**30 marks**

A. List of Experiments

60 Periods

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. Prepared 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 - emasculation, tagging and bagging.
9. Common disease causing organisms like Ascaris, Entamoeba, Plasmodium, Roundworm through permanent slides or specimens. Comment on symptoms of diseases that they cause.
10. Two plants and two animals (models/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 upon their morphological adaptations.

QUESTION PAPER DESIGN 2018-19
BIOLOGY (Code No. 044) Class - XII

S. No.	Typology of Questions	Very Short Answer (VSA) (1 mark)	Short Answer-I (SA-I) (2 marks)	Short Answer-II (SA-II) (3 marks)	Long Answer (LA) (5 marks)	Total Marks	% weight-age
1.	**Remembering :** (Knowledge based Simple recall questions, to know specific facts, terms, concepts, principles, or theories, Identify, define, or recite, information)	2	1	1	—	7	10%
2.	**Understanding : (Comprehension-** To be familiar with meaning and to understand conceptually, interpret, compare, contrast, explain, paraphrase information)	—	2	4	1	21	30%
3.	**Application :** (Use abstract information in concrete situation, to apply knowledge to new situations, use given content to interpret a situation, provide an example, or solve a problem)	—	2	4	1	21	30%
4.	**High Order Thinking Skills (Analysis & Synthesis :** Classify, compare, contrast, or differentiate between different pieces of information, Organize and/or integrate unique pieces of information from from a variety of sources)	2	1	1	1	12	17%
5.	**Evaluation:** (Appraise, judge and/or justify the value or worth of a decision or outcome, or to predict outcomes based on values)	1	1	2	—	9	13%
	Total	**5×1=5**	**7×2=14**	**12×3=36**	**3×5=15**	**70 (27)**	**100%**

QUESTION WISE BREAK UP

Type of Questions	Mark (s) per Questions	Total No. of Questions	Total Marks
VSA	1	5	05
SA - I	2	7	14
SA-II	3	12	36
LA	5	3	15
Total		**27**	**70**

1. **Internal Choice:** There is no overall choice in the paper. However, there is an internal choice in one question of 2 marks weightage, one question of 3 marks weightage and all three questions of 5 marks weightage.
2. The above template is only a sample. Suitable internal variations may be made for generating similar templates keeping the overall weightage to different form of questions and typology of questions same.