

Entrance exam program 2023/2024

GRADE 11 TO 12 GS / LS

MATHS from second secondary S to GS-LS :

2nd degree equations

- Solving an equation of the second degree- real roots of an equation
- Solving second-degree inequalities
- Solving systems of inequalities

Polynomial

- Search for the roots of a 3rd degree polynomial
- Factorization of a 3rd degree polynomial
- Solving inequalities of 3rd degree

Functions

- Studies of limits at infinity and at a number
- Derivative: derivative formulas – equation of a tangent .
- Study and graph of polynomial and rational functions
- Element of symmetry of a function.
- Graphical study of a function (solve equations -inequalities- slope of a tangent

Trigonometry

- Solve trigonometric equations of the form $\cos x = \cos a$; $\sin x = \sin a$ and $\tan x = \tan a$
- Trigonometric formulas for addition- duplication and transformations

Probability

- Calculate the number of arrangements, permutations and p-lists
- Recognize vocabulary (random experience- universe - event- event and - event or- contrary event - incompatible event)
- Calculation of the probability of an event
- Morgan's formula

Numerical sequences

- Implicit sequence- explicit sequence- variations of a sequence
- Arithmetic sequence - properties and sum
- Geometric sequence - properties and sum

Biology :

1- Cell cycle

- Interphase / mitosis
- Structure and components of DNA
- DNA replication

2- Protein synthesis

- Nature and function of protein
- Gene and transgenesis
- Transcription
- Translation

3- Genotype and phenotype

- Genes, alleles and mutations
- Transmission of traits (simple pedigree analysis)

4- Regulation of glycemia

- Role of liver
- Role of pancreas

Chemistry :

- Balancing redox reactions.
- Preparing solutions by dissolution and dilution.
- Stoichiometry of a reaction.
- Redox titration.
- Hydrocarbons

Physics :

Unit I

Newton's second law

Work and energy

Unit IV Electricity and magnetism

Capacitors

Magnetic field by a current

Laplace's force

- الإنسان والحب العلاقة الوجدانية بين الرجل والمرأة

English

Reading:

- Understand /Read information given through language discourse pertaining to scientific and professional material.
- Interpret scientific conventions (graphs, tables, diagrams, charts, etc.)
- Use learned prefixes, suffixes and stems in the recognition and formation of new words.
- Guess meanings from context.
- Identify thematic relations between paragraphs.

Written Communication: Demonstrate ability to write effectively.

- Vary the linguistic complexity and word choice according to an audience.
- Use the words, expressions, and structures appropriate for topics and tasks.
- Use technical lexis for a variety of scientific situations (proportions, shapes, properties, states, equivalence, actions, etc.).
- Use grammatical components most pertinent to scientific discourse (such as the passive voice, conditionals, verb tenses, articles and prepositions, complex sentence structures, etc.).