



## **St. Joseph's Institution**

### **Entrance Tests for Admission to Secondary 2 and 3 in 2011**

**This pamphlet provides candidates with information on the subject tests on English Language, Mother Tongue, Science and Mathematics for admission into Secondary 2 and Secondary 3 in 2011.**

**The information provided includes the topics covered, the duration of the paper and the paper structure for each subject to be tested.**

**English Language  
Secondary 2 & 3**

**Total Duration : 1 hour 15 mins**

**Section A: 30 marks**

Reading Comprehension:

Candidates will read a variety of text types e.g. narrative, description, exposition, literary texts, etc. and answer 30 multiple choice questions related to these texts.

They will have to read carefully to understand, infer and interpret the information provided and demonstrate understanding of language and grammar.

**Section B: 30 marks**

Situational Essay:

Students will have to write a 200-250 word essay based on information given on a specific situation. Candidates will have to communicate clearly and effectively to suit the purpose, audience and context of the given situation. They will have to show development of main ideas which are provided as guidelines and show ability to plan, organize and write coherently in Standard English.

**Mother Tongue Language (Chinese/Malay/Tamil)  
Secondary 2 & 3**

**Total Duration: 1 hour 30 mins**

**Section A: 50 marks**

Essay Writing:

Candidates will have to select from a list of descriptive, expository, narrative or argumentative topics and write a 250 - 300 word essay on the selected topic. They will have to communicate clearly and effectively to show ability to plan, organize and develop ideas and write coherently.

**Section B: 50 marks**

Reading Comprehension:

Candidates will read a variety of text types e.g. narrative, description, exposition, and answer questions. There will be 2 comprehension passages: the first with 5 multiple choice questions and the second with 10 open-ended questions.

They will have to read carefully to understand, infer and interpret the information provided and demonstrate understanding of language and grammar.

## **Science Secondary 2 & 3**

**Total duration: 1 hr 30 mins**

### **Topics Tested for Secondary 2 Admission**

- Cells – Structure, function and organization
- Classification of Plants and Animal Life
- Photosynthesis
- Respiration
- Abuse to life processes
- Use of measuring instruments
- Speed, rate, density
- Physical quantities and Units
- Effects of Heat Energy
- Transmission of Heat Energy
- Sources & Storage of Energy
- Elements, Compounds and Mixtures
- Classification of Matter
- Solutions and Suspensions

### **Topics Tested for Secondary 3 Admission**

- Sexual Reproduction in Human Beings
- Digestion in Animals
- Transport in Living Things
- Ecology
- Electricity
- Optics (Reflection. Refraction & Lenses )
- Magnetism
- Sound
- Atoms and Molecules
- Chemical Changes
- Particulate Nature of Matter

### **Section A: 30 marks**

This section consists of 30 multiple-choice questions.

### **Section B: 70 marks**

This section consists of 8 - 10 short-response questions which require the candidates to process information, calculate and analyse data provided. Candidates are also required to explain and justify their answers in some questions.

## **Mathematics Secondary 2 & 3**

**Total Duration: 1 hour 45 mins**

### **Topics Tested for Secondary 2 Admission**

#### *Arithmetic*

- Numbers, fractions, decimals and percentages. Approximation and estimation, exact values, significant figures and decimal places. Squares, square roots, cubes and cube roots.
- Directed numbers in practical situations. Rate, time and average speed. Money, personal and household finance, simple interest, discount, profit and loss.
- Ratio and proportion. Scales and maps.

#### *Mensuration*

- Perimeter and area of a square, rectangle, triangle, parallelogram, trapezium, circumference and area of a circle. Arc length and sector area.
- Surface area and volume of a cuboid, cylinder, prism, sphere, pyramid and cone.

#### *Algebra*

- Basic Algebra
- Expansion and factorization of simple algebraic expressions.
- Simple algebraic fractions and equations.
- Solve simple algebraic equations

#### *Graphs*

- Coordinate geometry. Interpretation of straight line graph.
- Graphical solution of straight line graphs. Estimation of gradients.
- Graphs in practical situations.

#### *Geometry*

- Geometrical properties of angles. Angle properties of polygon. Symmetry.
- Construction.

### *Statistics*

- Bar chart, pie chart, pictogram, histogram, dot diagram, stem-and-leaf diagram, mean, median and mode.

### *Investigative Problems and Number Patterns*

### *Heuristics And Problem Solving*

## **Topics Tested for Secondary 3 Admission**

### *Arithmetic*

- Numbers, fractions, decimals and percentages. Approximation and estimation, exact values, significant figures, decimal places and standard form. Squares, square roots, cubes and cube roots.
- Directed numbers in practical situations. Rate, time and average speed. Money, personal and household finance, simple interest, discount, profit and loss.
- Ratio and proportion. Scales and maps.

### *Mensuration*

- Perimeter and area of a square, rectangle, triangle, parallelogram, trapezium, circumference and area of a circle. Arc length and sector area.
- Surface area and volume of a cuboid, cylinder, prism, sphere, pyramid and cone.

### *Algebra*

- Evaluation and change of subject of a formula. Algebraic symbols.
- Indices. Direct and Indirect variation.
- Expansion and factorization of algebraic expressions.
- Simple algebraic fractions and equations. Quadratic equations and simple linear equations.
- Problems involving quadratic equations and simultaneous equations.

### *Graphs*

- Coordinate geometry. Interpretation of straight line graph.
- Graphs of quadratic equations. Graphical solution of equations. Estimation of gradients.
- Graphs in practical situations.

## *Geometry*

- Geometrical properties of angles. Angle properties of polygon. Symmetry.
- Similarity and congruency. Areas and volumes of similar figures.
- Construction.

## *Trigonometry*

- Trigonometrical ratios, Pythagoras' Theorem and solution of right-angled triangles.
- Angles of elevation and depression.
- Simple three-dimensional problems.

## Statistics

- Bar chart, pie chart, pictogram, histogram, dot diagram, stem-and-leaf diagram, mean, median and mode.

## Investigative Problems and Number Patterns

## *Heuristics And Problem Solving*

### **Paper: 100 marks**

There will be 16 to 20 questions of varying marks and lengths testing on fundamental skills and concepts and higher order thinking skills. Candidates are required to answer **ALL** questions. **Calculators are NOT allowed.**

The paper will test candidates' abilities to:

- understand and use mathematical concepts and skills in a variety of contexts;
- organize and analyze data and information; formulate problems into mathematical terms and select and apply appropriate techniques of solution, including manipulation of algebraic expressions;
- solve higher order thinking problems; interpret mathematical results and make inferences; write mathematical explanation and arguments.