

**Ph.D. PROGRAMME IN MATHEMATICS
EDUCATION**

Term-End Examination

June, 2015

00298

**RMT-011 : EVOLUTION OF MATHEMATICAL
REASONING AND PHILOSOPHY**

Time : 2 hours

Maximum Marks : 50

Note : Attempt all questions.

1. Explain each of the following statements, with an example as part of each explanation : 15
- (i) Mathematical tasks have considerable cognitive complexity.
 - (ii) The mathematical knowledge of the ancient Egyptians was limited to a few areas.
 - (iii) The 'certainty' in mathematics differs from the 'certainty' in the discipline of education.

2. Briefly describe the three schools of thought of mathematical philosophy listed below :

- (i) Formalism
- (ii) Intuitionism
- (iii) Logicism

Also name a well-known practitioner of each school of thought.

12

3. Explain a feature of mathematics that makes it useful to other disciplines. Your response should include two examples, related to *distinct* areas of mathematics.

7

4. Explain the process of abstraction and generalisation, bringing out differences in them, if any. Give an example to support your explanation.

6

5. Explain the concepts of 'representation' and 'form and function' in the context of mathematical reasoning. Use examples from algebra to support your explanation.

10
