No. of Printed Pages : 3

RMT-012

Ph.D. PROGRAMME IN MATHEMATICS EDUCATION

Term-End Examination

00248

June, 2015

RMT-012 : AN OVERVIEW OF MATHEMATICS EDUCATION

Time : 3 hours *Maximum Marks : 100*

Note : *Attempt **all** questions.*

1. Explain Piaget's theory of learning. How does it differ from Vygotsky's theory of learning ? Use examples from the development of spatial understanding as part of your explanations. *15*

2. Explain the difference between a 'difficulty', 'an understanding' and a 'misconception'. Also give an example of each, taken from mathematics taught at the secondary level. *5*

3. List three standards you would use for measuring the mathematical achievement of a child of Class VIII in a rural school in your State. Would you use the same standards if the child is in a well-equipped urban school ? Give reasons for your answer. *5*

4. Describe at least two informal ways in which mathematics can be learnt, with examples in support of your description. *5*

5. Explain the processes involved in 'thinking mathematically'. How can these processes be nurtured through the Open and Distance Learning (ODL) mode ? *10*

6. Describe three different ways in which 'assessment for learning' can be carried out. How would these methods change to accommodate 'assessment of learning' ? Use examples from the context of learning of probability in support of your response. *15*

7. Explain the process of 'transfer of learning' in the context of a secondary school learner. What are the implications of this process for a mathematics teacher ? *10*

8. Give examples to support the following statements : *10*

   (i) No assessment method is purely formative or purely summative.

   (ii) So-called 'extra-curricular activities', such as 'singing' are curricular activities for any school-going child.

(iii) Electronic technology is useful for transacting mathematics in a country like India.

(iv) The National Curriculum Framework (NCF 2005) of India differs in many ways from the National Curriculum currently in a place in China.

(v) Ancient Indian mathematicians made fundamental advances in the field of trigonometry.

9. Explain Bruner's theory about children's cognitive growth. Also explain the revolution this brought in the field of mathematics teaching. *10*

10. Give five important differences between the NCF, 2005 and the curriculum that was followed by your State Board in 1995. *10*

11. Give three social factors affecting the learning of mathematics by children with disabilities of your State. In what way are these addressed by any recent laws ? *5*
