CONFIDENTIAL GDK3223

UNIVERSITI UTARA MALAYSIA

FINAL EXAMINATION
SECOND SEMESTER 2008/2009 SESSION

CODE/COURSE : GDK3223 MATHEMATICS TEACHING METHODS
DATE : 20 APRIL 2009 (MONDAY)
TIME : 8.30 – 11.00 A.M. (2 ½ HOURS)
VENUE : DTSo

INSTRUCTIONS:

1. This examination paper contains TWO (2) sections i.e., Section A and Section B, in SIX (6) printed pages, excluding the cover page.
2. Section A contains SEVEN (7) structured questions. Section B contains FOUR (4) essay questions. You are required to answer ALL the questions.
3. Answer Section A on the examination paper and Section B on the answer sheets provided.
4. Answers to Section A and Section B should be tied together.
5. You are NOT ALLOWED to remove the examination paper from the examination hall.

MATRIC NO.: ____________________________
(in words) ____________________________
(in figures) ____________________________
IDENTITY CARD NO.: _________________
LECTURER : DR. RUZLAN MD. ALI
GROUP : A TABLE NO.: _____________

DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO DO SO

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SECTION A (40 marks)

INSTRUCTIONS:
Answer ALL the questions.

1. State **THREE (3)** objectives of the Mathematics **Curriculum** for the secondary schools in Malaysia.

   (i) 
   
   
   (2 marks)

   (ii) 
   
   
   (2 marks)

   (iii) 
   
   
   (2 marks)

2. State **THREE (3)** main focus areas within the Mathematics **Curriculum** for the secondary schools in Malaysia and give **ONE (1)** example of the topic taught in each area.

   (i) 
   
   
   (2 marks)
3 List FIVE (5) main elements focused in the teaching and learning of mathematics in the mathematics syllabus for the secondary schools in Malaysia.

(i) ______________________________________________________________________

(ii) ______________________________________________________________________

(iii) ______________________________________________________________________

(iv) ______________________________________________________________________

(v) ________________________________________________________________________

(5 marks)

4 (a) Identify THREE (3) different methods of assessment that can be conducted in the teaching and learning of mathematics.

(i) ______________________________________________________________________

(ii) ______________________________________________________________________

(iii) ______________________________________________________________________

(3 marks)
(b) Explain briefly how students’ responses in the various assessment methods used can help mathematics teachers enhance the process of teaching and learning of mathematics in the classrooms.

(4 marks)

5 Write the steps to demonstrate the procedures of determining the first three common factors of 18 and 24.

(4 marks)
Using appropriate diagrams, describe how you would explain the meaning of "3 × 4 1/4" to your students.
Using appropriate illustrations, describe the steps to guide your students to construct an isosceles triangle ABC with sides AB = 4 cm, AC = 6 cm and BC = 6 cm by using a blank paper, a ruler and a pair of compasses.

(6 marks)
SECTION B (60 marks)

INSTRUCTIONS:
Answer ALL the questions.

1. Describe the teaching and learning activities through the inductive approach that you would use to show your students that for all right triangles with sides \( p \) unit, \( q \) unit and \( r \) unit, where \( r \) is the hypotenuse, \( r^2 = p^2 + q^2 \). (15 marks)

2. Explain how you would guide your students to solve the following problem by using Polya’s Model (1957):

   The minute hand of a clock is 10 cm long. How far does the tip of the minute hand moves in 20 minutes? Give your answer correct to 2 decimal places. (Take \( \pi = 3.142 \)). (15 marks)

3. Describe how you would guide your students to determine the points A and B that are 3 cm from P and equidistant from P and Q and given that PQ is a straight line of length 5 cm. (15 marks)

4. Explain the steps that can be conducted when guiding the students to construct a dual bar chart and determine the total sale of burgers during the three months based on the information given in Table 1.

   Table 1
   Sales of burgers in a restaurant

<table>
<thead>
<tr>
<th>Types of burgers</th>
<th>January</th>
<th>February</th>
<th>March</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicken burgers</td>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Fish burgers</td>
<td>500</td>
<td>400</td>
<td>300</td>
</tr>
</tbody>
</table>

   (15 marks)

END OF EXAMINATION PAPER