Royal University of Bhutan
Paro College of Education
Spring Semester Examination – June 2017

II DE A and DE B – Mathematics in Lower Pry. II (MAT 202)

Full mark: 100   **Pass mark: 50**   **Time: 3 hours**

Instruction: *This question paper consists of two sections, A and B. Section A consists of Multiple choice type questions and section B consists of long answer questions. The weighting for Section A is 20 marks and section B is 80 marks. Every question in section A is worth 2 marks and section B is worth 16 marks. The intended marks for the questions in section B are given alongside every question. Instructions for each section are mentioned accordingly.*

You are NOT allowed to use any electronic devices such as mobile phone and calculator.

Section A (COMPULSORY) (10 × 2= 20 marks)
(Answer all the questions. Choose only one correct answer for each question and write in the answer script the correct answer against the question number.

Question 1 (Multiple Choice)   **(10 x 2 = 20 marks)**

   i. A rectangle has

      a. 1 line of symmetry
      b. 2 lines of symmetry
      c. 4 lines of symmetry
      d. 8 lines of symmetry

   ii. Which one of the following shapes does not tessellate?

      a. Rhombus
      b. Circle
      c. Trapezoid
      d. Hexagon

iii. You have eight pairs of different colour socks. What should be the minimum number of socks you need to take out so that you will have at least one pair of matching socks?

    i.   8
    ii.   9
    iii.   10
    iv.   12

iv. From a pack of cards the theoretical probability of taking out King and Queen will be:

    a. $\dfrac{1}{4}$

    b. $\dfrac{1}{13}$

    c. $\dfrac{2}{13}$

    d. $\dfrac{1}{26}$

v. Tshering's mean mark in 4 subjects is 71. His marks in three subjects are: 64, 68 and 78. How much mark has he scored in the fourth subject?

    a.   70
    b.   211
    c.   284
    d.   74

vi. The best estimate for the height of the classroom door is

    a.   1 metre.
    b.   2 metre
    c.   4 metre
    d.   6 metre

vii. Which one of the following is NOT the property of a rhombus?

    a.   All sides are equal
    b.   Opposite angles are equal
    c.   only one pair of opposite sides are parallel
    d.   Diagonals bisect at 90^0

viii. If a dice numbered 10 to 15 is rolled once, the theoretical probability of getting prime number is about

    a. 50%
    b. 25%
    c. 33%
    d. 75%

ix. A loaf of bread having 15 slices is shared by 3 persons. What fraction of the bread will each person get?

    a. $\dfrac{1}{3}$

    b. $\dfrac{15}{3}$

    c. $\dfrac{1}{2}$

    d. $\dfrac{1}{5}$

x. The side face of a regular pyramid is always a

    a. Rectangle
    b. Square
    c. Triangle
    d. Rhombus

Section B (5 ×16 = 80 marks)

*(There are **SEVEN** questions in this section. Answer any **FIVE** questions. Sub-questions must be answered in order and completely for every question. Intended marks for all the sub-questions are mentioned alongside)*

Question 2

a. What are the 2 D shapes introduced in class I? How would you introduce these 2D shapes to class I children? Write down step by step presentation along with activities that you intend to provide to the children to familiarize these shapes. (2 + 6 = 8 marks)

b. Explain line symmetry with at least two appropriate examples of picture having line symmetry. Describe any two activities that can be carried out while teaching symmetry.
(4 + 4 = 8 marks)

Question 3

a. A wire of certain length (e.g. 50 metres long) will always enclose same area in whatever shape it is bent into. Do you agree or disagree? Justify your answer with appropriate illustrations. (8 marks)

b. What are the two approaches of introducing addition? Explain using your own stories and represent the stories using picture. (4 + 4 = 8 marks)

Question 4

a. One of the objectives on measurement is that "the children will be able to measure capacity using non-standard units". Describe two activities that you would like to carry out to achieve this objective? Include relevant illustrations. (8 marks)

b. What are the two approaches of introducing subtraction to class I children? Explain with appropriate illustrations and your own example. (4 + 4 = 8 marks)

Question 5

a. The table below shows the number of children in a Primary school from classes PP to III. Represent the information using **Double Bar graph and Pie Graph for the total number of students.**

	PP	Class I	Class II	Class III
Boys	16	13	19	14
Girls	20	11	7	20

(4 + 4 = 8 marks)

b. Prepare an instruction card on how to find the **Area and Perimeter** of an irregular shape example leaf. Draw suitable diagram to support your instruction. (4 + 4 = 8 marks)

Question 6

a. A pack of 14 number cards having numbers from 1 to 14. When randomly picked up find the theoretical probability of getting: (8 x 1 = 8 marks)

    i.   an even number
    ii. a two digit number
    iii. number which are the multiple of 3.
    iv. number which are the multiple of 5
    v.   prime number
    vi. a one digit number
    vii. Numbers which are the factors of 18
    viii. Numbers divisible by 4

b. Design a suitable game to help children develop subtraction skill. You need to include the sample of the game and the instruction for playing that game. (8 marks)

Question 7

a. Where do we apply the idea of fraction in day to day life? Cite four examples. How would you introduce halves and quarter to class II children. Draw appropriate illustration wherever necessary. (2 + 6 = 8 marks)

b. Design 4 multiple choice type questions and two word problem questions to check class II children's' knowledge on addition.

(4 + 4 = 8 marks)

Question 8

a. Multiple 68 and 84 using any three different methods. Which method you liked most and why? (6 + 2 = 8 marks)

b. One of the objectives in class PP is "children will be able to identify and name the four basic 3D shapes". Design a lesson plan to achieve this objective. You need to follow the lesson plan format while designing the lesson plan.(8 marks)