

Royal University of Bhutan
Paro College of Education
Spring Semester Examination – 2013

B.Ed(P)II – 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 IS COMPULSORY and 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 20 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

Section A COMPULSORY (10 × 2= 20 marks)

(Answer all the questions. Choose the correct answer for each question and write in the answer script with the answer against the question number. *e.g. Q 1. D. kilogram*)

Question 1 (Multiple Choice)

(10 x 2 = 20 marks)

- A. The best unit to measure the mass of a paper clip is
- i. milligram
 - ii. millilitre
 - iii. gram
 - iv. kilogram
- B. Here is a question on addition for class II: $(78 + 49)$. How many regroupings are to be carried out to solve this question?
- i. Two regroupings
 - ii. One regrouping
 - iii. Three regroupings
 - iv. No regrouping
- C. The best estimate for the height of the classroom door is:
- i. 1 metre
 - ii. 500 centimetre
 - iii. 2 metre
 - iv. 200 metre

- D. You have four pairs of different colour socks (red, blue, green and yellow). Without looking at the socks, what should be the minimum number of socks you need to take out so that you will have at least one matching pair?
- 4
 - 5
 - 6
 - 8
- E. The side face of a pyramid is always a
- rectangle
 - square
 - triangle
 - rhombus
- F. If a die numbered 1 to 6 is rolled once, the theoretical probability of getting numbers 5 and above is about:
- 50%
 - 25%
 - 75%
 - 33%
- G. The best way to represent the growth of mass in the child's health card is through:
- Bar graph
 - Double bar graph
 - Pie chart
 - Line graph
- H. Which one of the following does not tessellate?
- Rhombus
 - Circle
 - Trapezoid
 - Hexagon
- I. A rectangle has _____ number of line of symmetry:
- 1
 - 2
 - 3
 - 4

- J. A hexagon is divided into six equal sized triangles. Four of the triangles are shaded. The fraction of un-shaded portion is:

i. $\frac{1}{4}$

ii. $\frac{2}{3}$

iii. $\frac{1}{3}$

iv. $\frac{4}{6}$

Section B (4×20 = 80 marks)

(There are **six** questions in this section. Answer any **FOUR** 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

- One of the objectives on measurement is that the children will be able to measure length directly and indirectly. What activities would you carry out to achieve this objective?
- A wire of certain length always occupies same area. Do you agree or disagree? Justify your answer taking your own suitable example.
- What are the two approaches of introducing Addition? Explain using your own story and representation of story.
- Here is a subtraction question for class III. $324 - 87$. How would you explain this subtraction question to class III students using base ten blocks. Draw picture wherever necessary and explain as you would explain in the real classroom situation. (4 x 5 = 20)

Question 3

- What are the two approaches of introducing division to class III children? Explain with appropriate illustrations and your own example
- Write any three stories for introducing subtraction to class I children. Draw picture to support your story.
- What are 3D shapes and 2D shapes? Explain in your own words with appropriate examples and illustrations.
- How would you explain faces, edges and vertices of 3D shapes? Design an activity to check children's understanding of faces, edges and corners. (4 x 5 = 20)

Question 4

- 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.
- What are the similarities and differences between rhombus and square? Explain with drawing.
- Design an activity on graph which would require children to collect information for drawing graph. Provide step by step instruction for the activity. Assuming the information collected by one of the groups choose a suitable graph and plot it.
- The table below shows the number of children in a Primary school. Draw double bar graph to represent the information.

| | PP | Class I | Class II | Class III | Class IV | Class V |
|-------|----|---------|----------|-----------|----------|---------|
| Boys | 17 | 20 | 19 | 14 | 15 | 9 |
| Girls | 24 | 13 | 15 | 20 | 8 | 12 |

(4 x 5 = 20)

Question 5

- What is the difference between mass and weight? Design an activity to familiarize children to measure mass using non standard units.
- Prepare an instruction card on how to find the area of irregular shape example leaf. Draw suitable diagram which is necessary.
- Sonam rolls a dice numbered 1 to 6. What would be the theoretical probability of getting?
 - an even number
 - Numbers greater than 2
 - Numbers which are the multiples of 3.
 - Number 1
 - Number greater than 6
- Explain the two types of probability? Write two examples for each for the probability which is certain, possible and impossible

Question 6

- a. What is the difference between area and perimeter? How would you introduce the concept of area to class I children?
- b. Design a game to help children develop addition skill. You need to include the sample of the game and the instruction for playing that game.
- c. What are the 4 basic 3D shapes that are introduced in class PP? How would you introduce these 4 basic 3D shapes to class PP children?
- d. Where do we apply the idea of fraction in day to day life? Cite three examples. How would you introduce halves and quarter to class II children. Draw appropriate illustration wherever necessary.

Question 7

- a. Design a word problem on addition of two proper fractions and show step by step how you would explain and solve the word problem.
- b. What are the three types of fractions? Design a game to familiarize children with equivalent fraction.
- c. Here is a question on multiplication (87×56). Solve it using any three methods. Which method you liked most and why.
- d. In a bag there are 20 snap cubes. 10 of them are red, 6 are green and 4 are white.
 - i. What would be the probability of taking out red snap cube?
 - ii. What would be the probability of taking out either red or green snap cube?
 - iii. What would be the chance factor of taking out white snap cube?
 - iv. How can you increase the probability of taking out white snap cube
 - v. Find the probability of taking out blue snap cube