

Semester End Examination  
Paro College of Education  
Royal University of Bhutan

**Module: MAT 202 (Mathematics in Lower Pry. II)**

**Program: B.Ed (P)**

**Level: II**

**Writing Time: 3 hours**

**Full marks: 100**

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**Read the following directions carefully:**

1. Do not write during the first 15 minutes. Use this time for reading the questions.
  2. You will get full three hours for answering the questions.
  3. Write the answers to all the questions in the answer sheets provided by the college.
  4. Read the directions to each section and to each question carefully before answering the questions.
  5. This question paper consists of two sections, A and B.
  6. Section A consists of Multiple Choice questions and section B consists of long answer questions.
  7. The weighting for Section A is 28 marks and section B is 72 marks.
  8. Every question in section A is worth 2 marks and section B 12 marks.
  9. Instructions for each section are mentioned accordingly.
  10. You are not allowed to use any electronic devices such as calculators, mobile phones etc.
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**Section A ( $14 \times 2 = 28$  marks)**

*Answer all the questions. Choose only one correct answer for each question and write in the answer script. The correct answer for each question must be written against the respective question number.*

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**Question 1**

- a. The best estimate for the height of classroom door is about
- A. 2 metres.
  - B. 4 metres.
  - C. 2 centimeters.
  - D. 6 metres.
- b. All the following can be estimated through observation **EXCEPT**
- A. Capacity.
  - B. Mass.
  - C. Length.
  - D. Area.

- c. The capacity of a container depends on the
- A. shape of the container.
  - B. volume of the container.
  - C. mass of the container.
  - D. space available inside the container.
- d. Which one of the following properties of rhombus need **NOT** be always true?
- A. All four sides should be equal.
  - B. All four angles should be  $90^\circ$ .
  - C. Opposite sides should be parallel.
  - D. Diagonals should bisect at  $90^\circ$ .
- e. In a die numbered 5 to 10, the theoretical probability of getting 7 and 8 is about
- A. 50%.
  - B. 25%.
  - C. 33%.
  - D. 75%.
- f. In an octagon, 6 parts are shaded. The un-shaded portion represents
- A.  $\frac{1}{4}$ .
  - B.  $\frac{3}{4}$ .
  - C.  $\frac{1}{2}$ .
  - D.  $\frac{2}{6}$ .
- g. Here is a question on addition for Class II.  $87 + 38$ . This question is addition of two-digit number with two-digit number with
- A. one regrouping.
  - B. two regrouping.
  - C. three regrouping.
  - D. no regrouping.
- h. The side face of a regular pyramid is always a
- A. rectangle.
  - B. square.
  - C. triangle.
  - D. rhombus.

- i. A rectangle has
- A. 1 line of symmetry.
  - B. 2 lines of symmetry.
  - C. 3 lines of symmetry.
  - D. 4 lines of symmetry.
- j. Which one of the following shapes does **NOT** tessellate?
- A. Rhombus.
  - B. Circle.
  - C. Trapezoid.
  - D. Hexagon.
- k. Which one of the following is **NOT** a standard international unit for measuring mass?
- A. Kilogram.
  - B. Quintal.
  - C. Ton.
  - D. Metric ton.
- l. You have four 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?
- A. 4
  - B. 5
  - C. 8
  - D. 2
- m. From a pack of cards the theoretical probability of taking out Black Jack will be
- A.  $\frac{1}{4}$ .
  - B.  $\frac{1}{13}$ .
  - C.  $\frac{2}{13}$ .
  - D.  $\frac{1}{26}$ .
- n. Dawa's mean mark in five subjects is 52. His marks in four subjects are: 66, 43, 55 and 49. How much mark has he scored in the fifth subject?
- A. 47
  - B. 213
  - C. 260
  - D. 53.25

## Section B (6 × 12 = 72 marks)

There are **EIGHT** questions in this section. Answer any **SIX** questions. Sub-questions must be answered in order and completely for every question. Intended marks for all the questions are mentioned alongside. You are not provided with graph paper. Wherever necessary draw graphs in the answer script itself.

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### Question 2

(6 + 6 = 12)

- Here is a subtraction question for Class III.  $435 - 87$ . How would you explain this subtraction question to class III students using Base-Ten Blocks? Draw picture wherever necessary and explain as you would do in the real classroom situation.
- 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?

### Question 3

(6 + 6 = 12)

- A wire of certain length always occupies same area. Do you agree? Justify your answer taking suitable example and illustrations as necessary.
- What are the two approaches of introducing addition? Explain using your own story and represent it using picture.

### Question 4

(6 + 6 = 12)

- What are the two approaches of introducing division to class II children? Explain with appropriate illustrations and your own example
- What are the 3 D shapes introduced in class PP? How would you introduce these 3D shapes to PP children?

### Question 5

(6 + 6 = 12)

- 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.
- The table below shows the number of children in a Primary school. Draw either a double bar graph to represent the information **OR** a Pie chart to show the total number of children in different class levels.

Classes	PP	Class I	Class II	Class III	Class IV	Class V
Boys	18	14	19	17	15	12
Girls	20	8	10	24	15	8

**Question 6** $(6 + 6 = 12)$ 

- a. Prepare an instruction card on how to find the area and perimeter of an irregular shape. Draw suitable diagram to support your instruction.
- b. In a bag there are four different colour snap cubes. 8 of them are red, 2 are green, 4 are white and 10 are yellow. What will be the theoretical probability of
  - i. taking out either red or white snap cube?
  - ii. not taking out yellow snap cube?
  - iii. taking out any snap cube except red?
  - iv. taking out a blue snap cube?
  - v. taking out any colour snap cube?
  - vi. taking out either red, green or white snap cube?

**Question 7** $(6 + 6 = 12)$ 

- a. 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.
- b. Where do we apply the idea of fraction in day to day life? Cite three examples. How would you introduce halves and quarters to Class II children? Draw appropriate illustration wherever necessary.

**Question 8** $(6 + 6 = 12)$ 

- a. Design a suitable game to help Class III children develop the concept of recognition of fraction. You need to include a sample of the game.
- b. From a pack of number cards, numbered from 1 to 12, find the theoretical probability of getting
  - i. an even number.
  - ii. a two digit number.
  - iii. number which is the multiple of 3.
  - iv. Number which is the multiple of 5.
  - v. a prime number.
  - vi. a one digit number.

**Question 9** $(6 + 6 = 12)$ 

- a. Multiply 78 and 46 using any three different methods. Which method do you like the most and why?
- b. One of the objectives in Class PP is *children will be able to identify and name 2D shapes*. Design a lesson plan on this objective. You need to follow the lesson plan format while designing the lesson plan.