Semester End Examination
Paro College of Education
Royal University of Bhutan

Module: MAT 202 (Mathematics in Lower Pry. II) **Programme:** B.Ed (P) **Level:** II

Writing Time: 3 hours **Full marks:** 100

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 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 carry/use any electronic devices to perform calculations.*

SECTION A

(10 × 2 = 20 marks)

INSTRUCTION**:** *Answer all the sub-questions. Choose only one answer for each sub-question and write in the answer script against the question number.*

Question 1

a. From a deck of 52 cards, the theoretical probability of taking out either a King or a Queen or a Jack will be.

A $\frac{3}{13}$

B $\frac{3}{52}$

C $\frac{2}{13}$

D $\frac{1}{13}$

b. Nidup,s marks in four subjects are: 80, 64, 68 and 79. How much mark has he scored in the fifth subject so that his average mark is 76?

A 79

B 76

C 89

D 74

c. The best estimate for the distance from Nangkha campus to Rinpung campus is

A 1000 meters.

B 200 meters.

C 2000 meters.

D 100 meters.

d. All of the following statements are true about a regular hexagon EXCEPT

A all sides are equal.

B can tessellate.

C all interior angles are right.

D has six lines of symmetry.

e. If a die numbered 1 to 6 is rolled once, the theoretical probability of getting prime number is

A 50%

B 66.6%

C 33.3%

D 75%

f. Sonam ate one third of her birthday cake and brought the rest to the school to give to her 5 friends. What fraction of the whole cake will each friend get if it was shared equally?

A $\frac{2}{15}$

B $\frac{1}{15}$

C $\frac{2}{3}$

D $\frac{2}{10}$

g. A certain regular polyhedron has 8 faces and 18 edges, then the number of vertices it has is

A 8

B 20

C 12

D 16

h. If two congruent isosceles trapezoids are attached at their longer sides, then the shape formed will have

A 1 line of symmetry.

B 2 lines of symmetry.

C 3 lines of symmetry.

D 4 lines of symmetry.

i. All of the following shapes satisfy regular tessellation EXCEPT

A Octagon.

B Rhombus.

C Hexagon.

D Scalene triangle.

j. You have six pairs of six different colour gloves in a bag. What should be the minimum number of gloves you need to take out without seeing so that you will have one pair of same colour gloves?

A 2

B 8

C 6

D 7

SECTION B

(80 marks)

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

Question 2

a. Multiply 76 and 97 using any three different methods. Justify the method you liked the most. (6 + 2 = 8)

b. Choose a suitable game to help Class I children develop the concept of addition and write the step by step instruction to play the game with appropriate illustrations. (8)

Question 3

a. A rope of certain length (e.g. 100 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)

b. What are the two approaches of introducing division? Explain using your own stories and represent the stories using picture. (2 + 6 = 8)

Question 4

a. One of the objectives on measurement is "the child will be able to measure length i) directly ii) indirectly". Prepare a lesson plan along with relevant activities and illustrations to achieve these objectives. (10)

b. Prepare an instruction card on how to find the 'area' and 'perimeter' of an irregular shape. Draw suitable diagram to support your instruction. (3 + 3 = 6)

Question 5

a. The table below shows the number of students in B.Ed. Primary Year II in Paro College of Education. Choose suitable scale and represent the information in the form of

   i. double bar graph.

   ii. pie graph.

   You are **NOT** provided with the separate graph paper. You need to draw the graphs in the answer sheet itself. (4 + 4 = 8)

Section / Gender	PCA	PCB	PCC	PCD	PCE
Boys	16	18	24	20	22
Girls	20	12	12	18	18

b. How would you teach '436 – 287' to Class II children using Base Ten Blocks? Explain with appropriate illustrations. (8)

Question 6

a. In a box there are 20 counters numbered 1 to 20. When a counter is randomly picked find the probability of getting (8 x 1 = 8)

i. an odd number.
ii. a two-digit number.
iii. a multiple of 3
iv. a multiple of 5
v. a prime number.
vi. a single digit number.
vii. a factor of 20
viii. a composite number.

b. Design a suitable game to help Class I children develop the concept of subtraction. Include a sample of the game and the instructions to play. (8)

Question 7

a. Design two multiple choice questions and two word problems suitable for Class III children to check the understanding of fraction. You need to include the solution for each question. (4 + 4 = 8)

b. Explain 'theoretical' and 'experimental' probability with suitable examples. Design two activities to develop the concept of probability to Class II children. (2 + 6 = 8)

Question 8

a. (4 + 4 = 8)

i. Explain how you will introduce the basic 3D shapes in class PP.
ii. Design an activity to familiarize these 3D shapes to the children.

b. Explain the following concepts with suitable illustrations. (2 + 2 = 4)

i. Line of symmetry
ii. Tessellation

c. Design an activity to develop the concept of symmetry. (4)