

Spring Semester Examination – 2021

Paro College of Education

Royal University of Bhutan

Paro

Module: MAT 403 (Mathematics in Upper Primary 1) **Programme:** B. Ed (P) **Level:** IV

Writing time: 3 hours

Full marks: 100

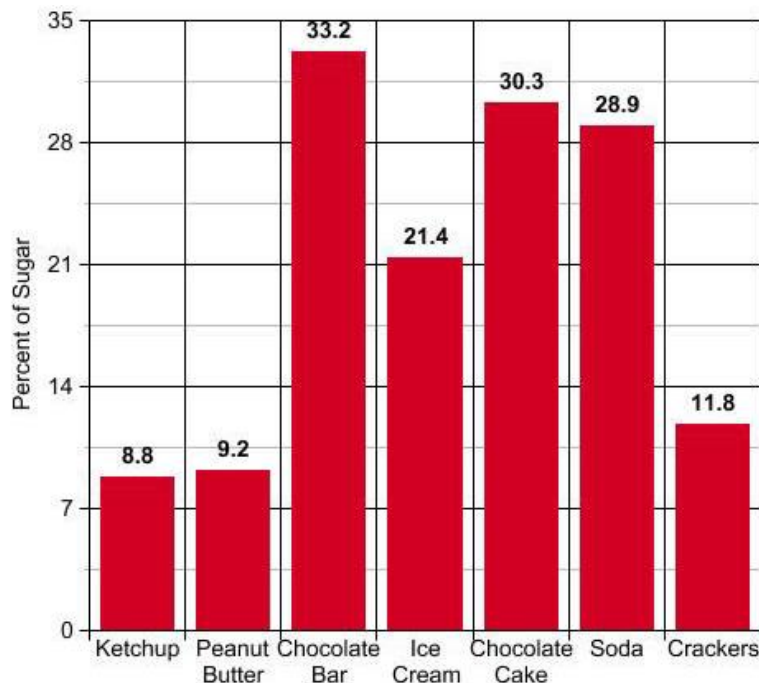
(5 x 20 marks = 100 marks)

Direction:

Do not write during the first 15 minutes. Use this time for reading the questions. You will get three hours for answering the questions. Write the answers to all the questions in the answer sheets provided. This paper contains SIX questions. Attempt any FIVE questions. All questions carry equal marks and the intended marks are given in brackets. You are NOT allowed to use any electronic devices such as calculators, mobile phones etc.

Question 1

- a. Add 73, 128 and 245 using base ten blocks. Illustrate and explain each and every step. [10]
- b. The amount of sugar in 7 different foods was measured as a percent. The data is summarized in the bar graph below. [10]



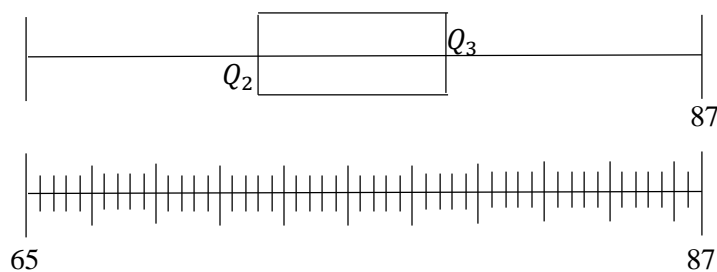
- i. What is the title of this bar graph?
 - ii. What is the range of values on the (vertical) scale?
 - iii. How many categories are in the graph?
 - iv. Which food had the highest percentage of sugar?
 - v. Which food had the lowest percentage of sugar?
 - vi. What percentage of sugar is in soda?
 - vii. What is the difference in percentage of sugar between ice cream and crackers?
- viii. If there were 200 kg of each item, find the kg of sugar in:
- a) soda
 - b) chocolate cake
 - c) peanut butter
 - d) crackers

Question 2

- a. Subtract 99999 from 10101010 without borrowing. [5]
- b. Solve $+15 \div -5$ using integer counter. [10]
- c. Solve $\frac{3}{4} \times \frac{4}{5}$ using grid. [5]

Question 3

- a. There are 35 data. All or some data points are given in the plot. Write a set of data for the following plots. Find: i. Q_1 ii. Q_2 iii. Q_3 iv. Minimum data point v. range vi. inter quartile range. [7]



- b. Illustrate and explain each and every step. [7]
- -9×-5

- c. $\frac{1}{3}$ $\frac{2}{3}$ 1 $\frac{4}{3}$ $\frac{5}{3}$ 2 $\frac{7}{3}$ — — — . Fill in the blanks and derive the n^{th} term. [6]

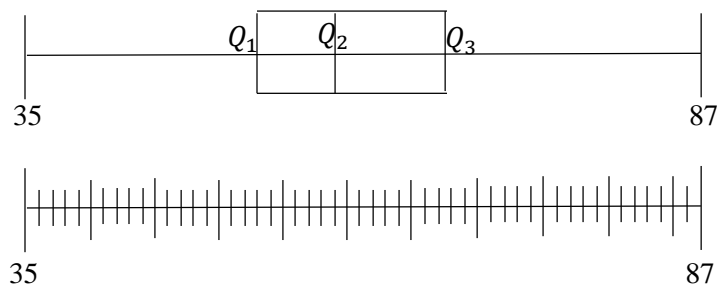
Question 4

Illustrate and explain each and every step for the following problems.

- a. $\frac{3}{4} + \frac{4}{5}$ using Cuisenaire rods. [6]
- b. 103 99 95 91 87 83 79 — — — . Fill in the blanks and derive the n^{th} term. [6]
- c. Solve $\frac{3}{4} \div \frac{4}{5}$ using grid. [8]

Question 5

- a. There are 35 data. All or some data points are given in the plot. Write a set of data for the following plots. Find: i. Q_1 ii. Q_2 iii. Q_3 iv. Minimum data point v. range vi. inter quartile range. [6]



- b. Solve $-15 - +5$ using integer counter. Illustrate and explain each and every step for the following problems. [8]

- c. A wild life official created the following stem-and-leaf plot showing the number of tigers at each major sanctuary in the country. [6]

STEM	LEAF
0	7
1	1 4 8
2	5 5 5 6 7 7 9
3	
4	

- What was the smallest number of tigers at any one sanctuary?
- What was the highest number of tigers at any one sanctuary?
- What is the median?
- What is the mean?
- What is the mode?
- What is the lower quartile and the upper quartile of the data set?

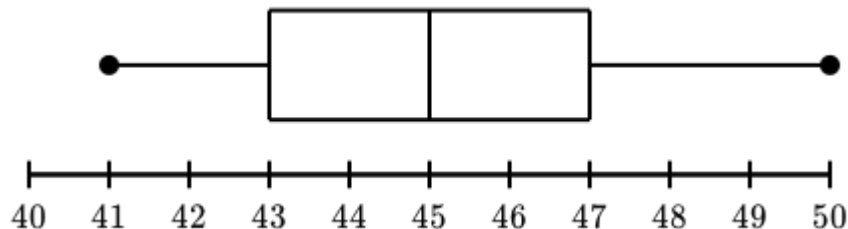
Question 6

- a) The data below represents the number of pizza sold at each of the ice cream stands in Paro Tshongdue. [4]

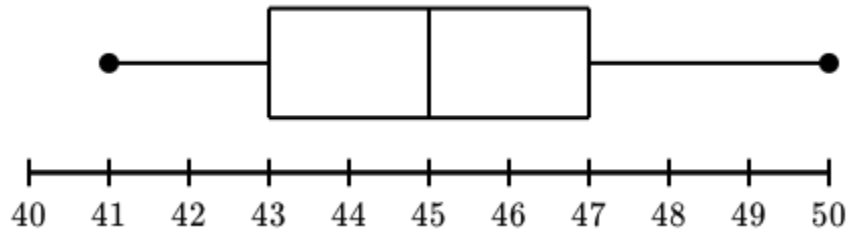
50, 42, 43, 45, 47, 43, 48, 43, 41, 50

Which box plot correctly summarizes the data? Choose 1 answer and show your answer with proper explanation and justification.

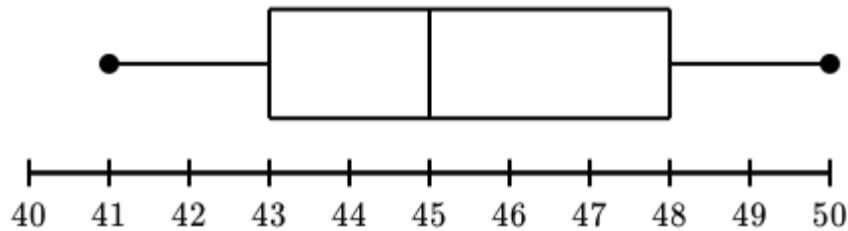
A



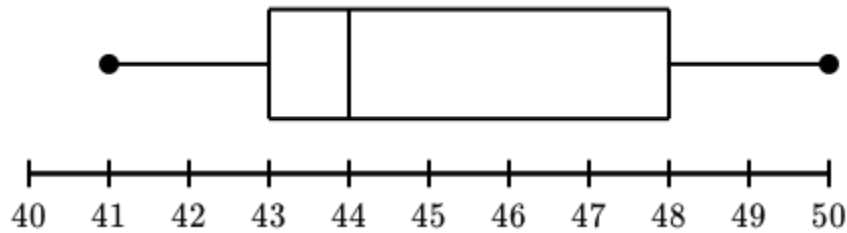
B



C



D



b. The answer is $+12$ for the following problems. [6]

1.1 Subtraction problem

1.2 Multiplication problem

Write a word story each. Solve and show the answer.

c. Show $\frac{3}{4} - \frac{2}{5}$ using Cuisenaire rods. [6]

d. $\frac{11}{4}$ 2 $\frac{5}{4}$ $\frac{1}{2}$ $-\frac{1}{4}$ -1 $-\frac{7}{4}$ _____. Fill in the blanks and derive the n^{th} term. [4]