ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE-27
IV SEMESTER
SEMESTER EXAMINATION: APRIL 2019
MTOE4116:QUANTITATIVE METHODS FOR COMPETITIVE EXAMINATIONS

Time- 1½ hr   **Max Marks-35**
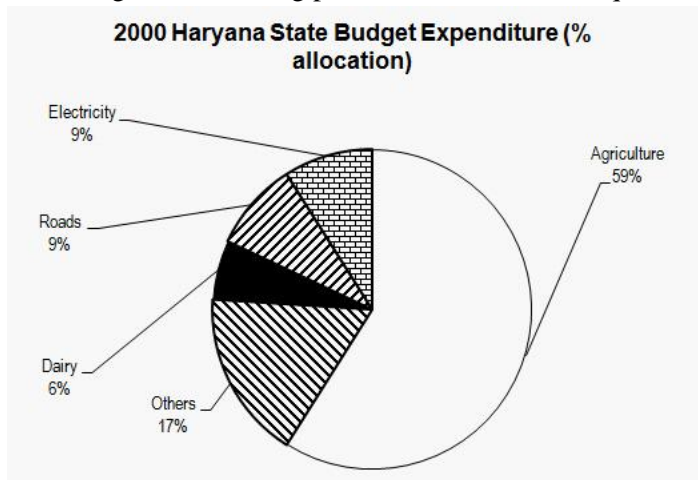
This paper contains three printed pages.

Answer any seven questions.   ($7 \times 5 = 35$)

1. a) If the number 481*673 is completely divisible by 9, what is the smallest whole number in place of *?

    b) $\dfrac{719 \times 719 + 347 \times 347 - 719 \times 347}{719 \times 719 \times 719 + 347 \times 347 \times 347} = ?$ (2+3)

2. a) If $x : y = 3 : 4$ find $4x + 5y : 5x - 2y$

    b) A bag contains 50 paisa, 25 paisa, and 10 paisa coins in the ratio 5:9:4 amounting Rs.206. Find the number of coins of each type.   (2+3)

3. a) i) What percent of 8 is 64?

    ii) $\dfrac{1}{2}$ is what percent of $\dfrac{1}{3}$?

    b) 65% of a number is 21 less than $\dfrac{4}{5}$ of that number. What is the number?   (2+3)

4. a) In how many different ways can the letters of the word 'MATHEMATICS' be arranged such that the vowels must always come together?
    b) From a group of 7 men and 6 women, 5 persons are to be selected to form a committee so that at least 3 men are there in the committee. In how many ways can it be done?   (2+3)

5. a) The sum of ages of 5 children born at the intervals of 3 years each is 50 years. What is the age of the youngest child?
    b) A is 2 years older than B who is twice as old as C. If the total of the ages of A,B and C be 27, How old is B?   (2+3)

6. a) If the speed of a man is 45 km per hour, then what is the distance traveled by him in 30 seconds ?
    b) Two buses A and B leave the same bus depot, A towards the North and B towads the East. The bus A travels at a speed of 5 km/hr more than that of the bus B. If after four hours the distance between the two buses is 100 km, find the speed of the bus A.   (2+3)
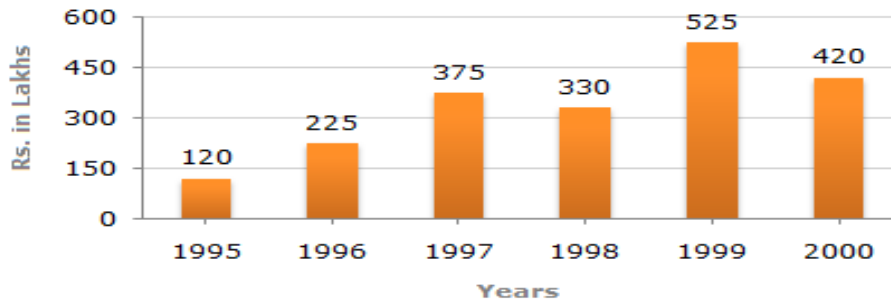
7. a) The difference between the circumference and the radius of the circle is 37cm. What is the area of the circle?

b) A hall 36m long and 15m broad is to be paved with stones, each measuring 0.6m by 0.5m. What is the minimum number of stones required? (2+3)

8. a) A circular road runs around a circular ground. If the difference between the circumference of the outer circle and the inner circle is 66 meters, then what is the width of the road?

b) The cross section of a canal is trapezium in shape. The canal is 12m wide at the top and 8m wide at the bottom. If the area of the cross section is 840 sq.m, then what is the depth of the canal? (2+3)

9. Go through the following pie chart and answer the questions given below. $(1 + 2 + 2)$
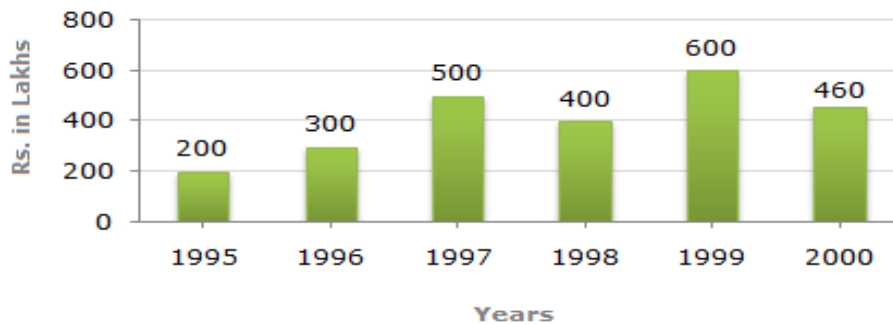

2000 Haryana State Budget Expenditure (% allocation)

Electricity 9%

Agriculture 59%

Roads 9%

Dairy 6%

Others 17%

a) Approximately what is the ratio of expenditure on agriculture to that on diary?

    i) 8:3   ii)9:2   iii)70:1   iv)10:1

b) In Haryana, in 2000, a total expenditure of Rs. 120 million was incurred.

    Approximately how many million did the Haryana government spend on roads?

    i) 15.4   ii)20   iii) 10.8   iv)12

c) How much more money was spent on electricity than diary in 2000, where the

    total expenditure was Rs.120 million?

    i)3   ii)3.6   iii)5   iv)15

10. Out of the two bar graphs provided below, one shows the amounts (in Lakh Rs.) invested by a Company in purchasing raw materials over the years and the other shows the values (in Lakh Rs.) of finished goods sold by the Company over the years. $(1 + 2 + 2)$

Amount invested in Raw Materials (Rs. in Lakhs)

Value of Sales of Finished Goods (Rs. in Lakhs)

a) The maximum difference between the amount invested in Raw materials and value of sales of finished goods was during the year-----
i)1995   ii)1996   iii)1997   iv)1998

b) What was the difference between the average amount invested in Raw materials and the average value of sales of finished goods during this period?

i)36 Lakhs ii)56 lakhs iii)45 lakhs iv)77.5 lakh

c) What was the percentage increase in the value of sales of finished goods from 1998 to 1999?

i)53%   ii)60%   iii)50%   iv)35.7%