ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE-27
UG MATHEMATICS OPEN ELECTIVE – IV SEMESTER
SEMESTER EXAMINATION: APRIL 2017
MTOE4216: QUANTITAIVE APTITUDE FOR COMPETATIVE EXAMINATIONS
This question paper consists of 4 printed pages

Time- 1 ½   hrs   **Max Marks-35**
Answer any 7 questions out of the following 10 questions   **7 X 5 = 35**

I.

    1. Evaluate $(-2)^4(15 - 18)^4$ [1 M]

    2. Evaluate $\left(\dfrac{3}{4}+\dfrac{1}{7}\right)\left(\dfrac{-2}{5}\right)$ [2 M]

    3. Which of the integers 312, 98, 112 and 144 are divisible by 4.   [2 M]

II.

    1. What are the prime divisors of 110.   [1 M]
    2. What is the prime factorization of 400.   [2 M]
    3. Is $(- 7) > 3.5$ [1 M]
    4. Is $21/28 = ¾$ [1 M]

III.

    1. If a person's salary increased from RS. 1000 to RS. 1024 per week. What is the percent increase in that person's weekly salary.   [3 M]
    2. If the ratio of the number of men to the number of women on a committee of 40 members is 3:2, how many members of the committee are men.   [2 M]

IV.

    1. Simplify $3x^2 – 10 + x + 21 – x^2$ [1 M]
    2. Use the rule of exponents to simplify $\left(x^{10}\right)^{-3}\left(y^3\right)^{-2}\big/\left(y\right)^{-5}x^{10}$ [1 M]
    3. Solve $18 – 5x = x + 36$ [1 M]
    4. What is the value of g(1)? For if $g(x) = 3x^3 – 4x^2 + 10x +21$ [2 M]

V.

    1. For a given two digit positive integer, the tens place is 5 times more than the units digit. The sum of the digits is 9. Find the integer.   [5 M]

VI.

2. Ram was riding his skateboard, jumped it in the air, spun once, and kept going in exactly the same direction. What was the angle of Ram's turn?
3. Rohan ordered a round pizza and had it cut into eight slices. If each slice is exactly the same size. Find the angle in each slice and the area of each slice. Use π = 22/7.
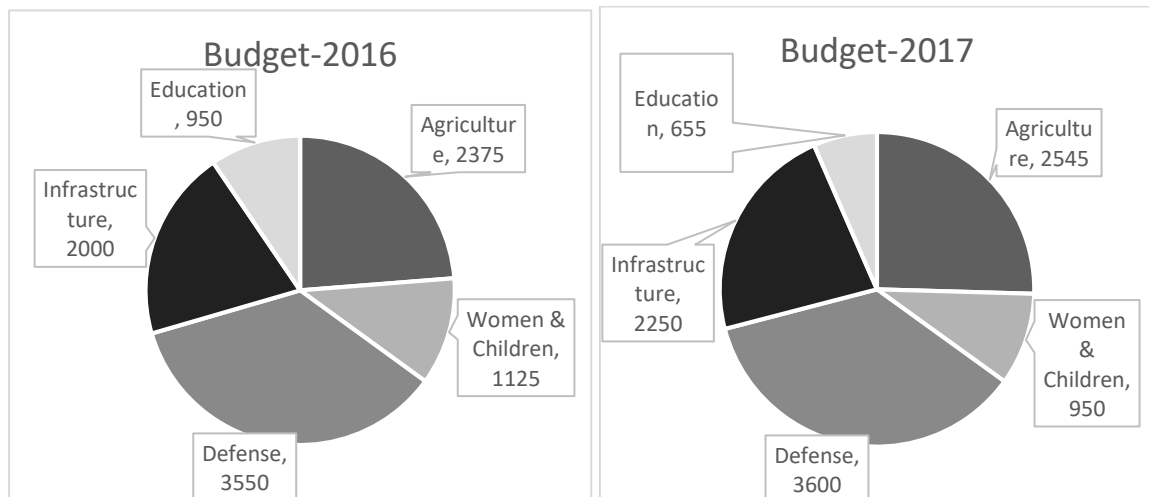
[2M + 3M]

VII.

1. Three coins, each with a radius of 2 cm, are placed in a row. How long is the row from end to end?
2. The circular lid of a barrel has a diameter of 196 centimeters. What is the circumference and the area of the lid? Use π = 22/7.   [2 M + 1 M + 2 M]
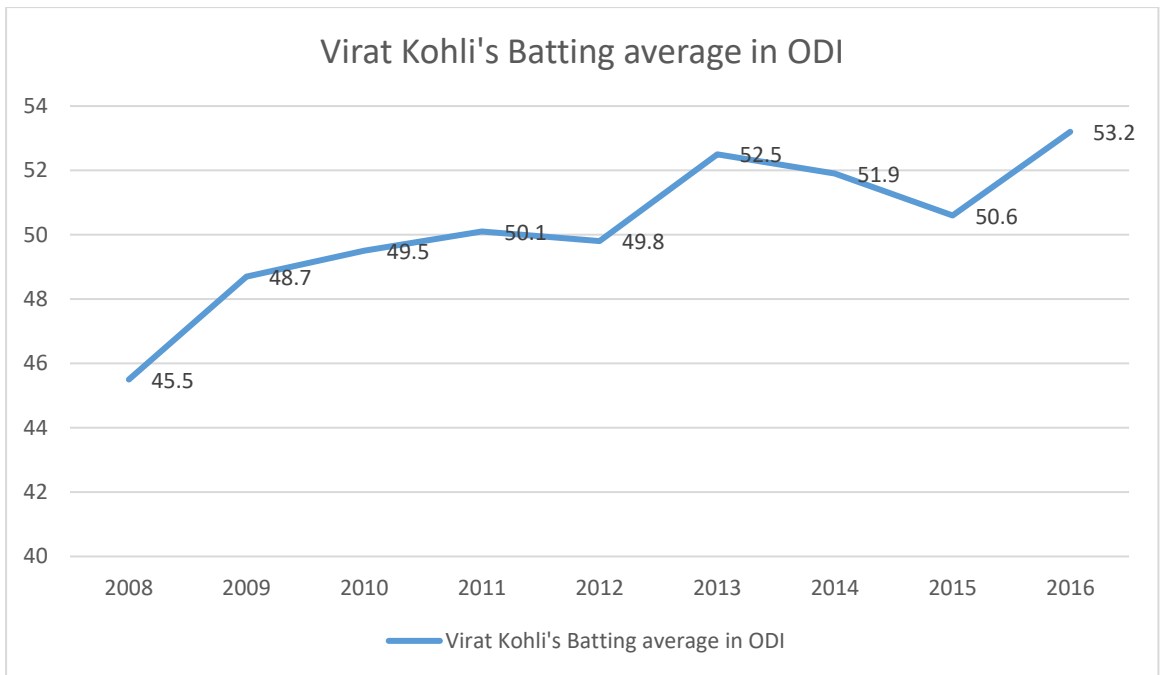
VIII.

Rs 10,000 cr. was the budget of India in 2016 and 2017. The following pie-charts represent their distribution.

a) Find the percentage distribution of each pie chart.
b) What was the percentage increase of funds in defense and infrastructure from 2016 to 2017?   [4 M + 1 M]
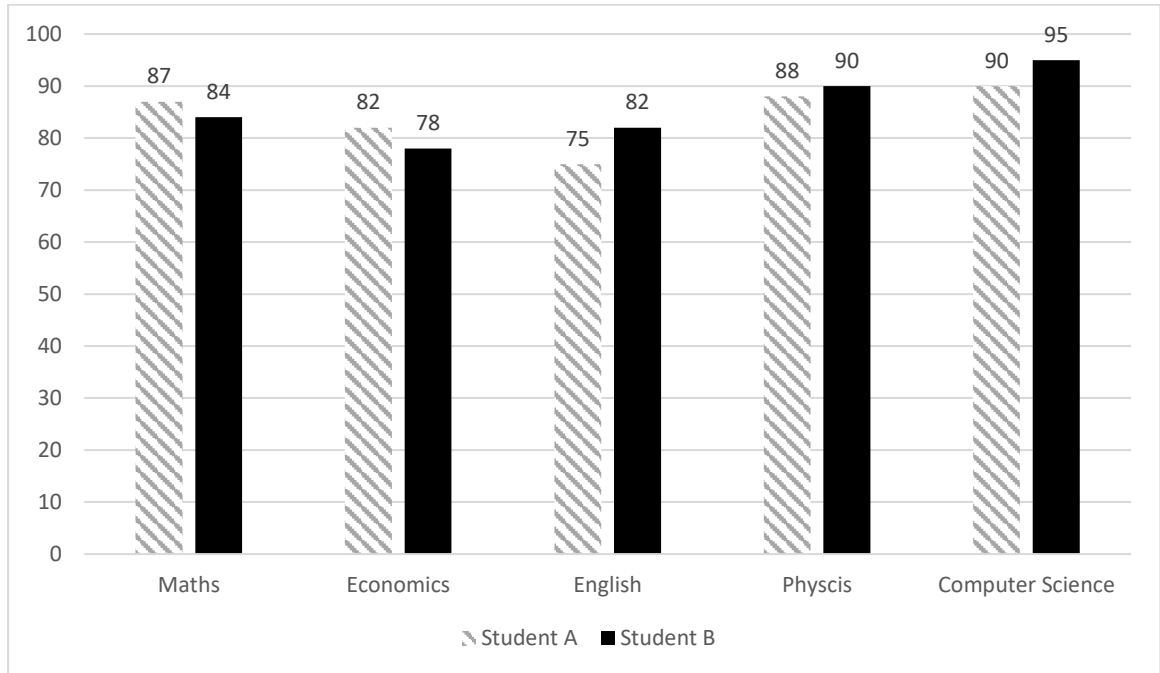
IX.   The following chart shows the batting average of Virat Kohli in ODI

Virat Kohli's Batting average in ODI

a) Find the overall batting average of Virat Kohli assuming he has played equal number of games in all the years.
b) In which year did Virat Kohli's batting average slipped the most in percentage form?

[3 M + 2 M]

X.   The marks of two students in 5 subject is given below.

a) Find the average percentage scored by both the students.
b) How many more marks does student A needs to score overall of 90%?   [4 M + 1 M]