**Maths Revision Test 4**

**Time: 60 mins**

**Max Marks : 37**

Q1.

(a) Explain whether the number 3 * 5 * 13 * 46 + 23 is a prime number or a composite number. 2 marks

(b) Find the HCF of 4052 and 420 using Euclid's division algorithm. 2 marks

(c) Show that $2\sqrt{2}$ is a irrational number.

2 marks

Q2. Prove that the product of any three consecutive positive integers is divisible by 6.

3 marks

Q3. Determine

A) On dividing $p(x) = x^3 - 8x^2 + 20x - 10$ by polynomial g(x), quotient and remainder are (x-4) and 6 respectively. Find g(x).

B) Polynomial $2x^2 - 3x + 1$ has zeroes as α and β. Form a quadratic equation whose zeroes are 3α and 3β.

C) If one zero of the polynomial $p(x) = 4x^2 - 8px + 8x - 9$ is negative of the other, then find the zeroes of $px^2 + 3px + 2$.

9 marks

Q4 Find the value of $(\text{cosec}^2\theta - 1).\tan^2\theta$ 1 mark

Q5 If $7\sin^2\theta + 3\cos^2\theta = 4$, Show that $\tan\theta = 1/\sqrt{3}$.

3 marks

Q5 At a point A, 20 m above the level of water in a lake, the angle of elevation of a cloud is 30º.

The angle of depression of the reflection of the cloud in the lake, at A is 60º. Find the

distance of the cloud from point A.

4 marks

Q6. Determine the value of m and n so that the following pair of linear equations have infinite number of solutions.

$(2m-1)x + 3y = 5$

$3x + (n-1)y = 2$

3 marks

Q7. The lenghts of 50 leaves of a plant are measured correct to the nearest millimetre and the data obtained is represented in the following table.

| Length (in mm) | 109–117 | 118–126 | 127–135 | 136–144 | 145–153 | 154–162 | 163–171 |
|---|---|---|---|---|---|---|---|
| No. of leaves | 4 | 6 | 14 | 13 | 6 | 4 | 3 |

Find the mean length of the leaves.

4 marks

**Q8.** Town A and B are 80km apart from each other on straight line. A bus starts from A and another from B at the same time. If they move in same direction they meet in 8hrs and if they move in opposite directions they meet in 1hr 20min. Find speeds of the buses.

4 marks