**Answer Script**

| Question No. 01 |
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| Choose a prime number from the range of 50 to 100. We will call it P. |
| Answer No. 01 |
| P is 73 |

| Question No. 02 |
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| Find the binary representation of P. You must show the process. |
| Answer No. 02 |
| P is 73 = 1001001 (binary) |
| 73 ÷ 2 =36 reminder 1  36 ÷ 2 =18 reminder 0  18 ÷ 2 =9 reminder 0  9 ÷ 2 =4 reminder 1  4 ÷ 2 =2 reminder 0  2 ÷ 2 =1 reminder 0  1 ÷ 2 =0 reminder 1  Ans = 1001001 (binary of 73) |

| Question No. 03 |
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| You and your friends in class might be choosing different values for P. Can anybody choose a P that is an odd number? Explain your answer. |
| Answer No. 03 |
| The number that me and my friends have, will be an odd number because. Here it says to pick a number of my choice from 50 to 100 prime numbers which is a prime number and me and my friends are pick any number, all will be odd numbers. The main reason is that except for the number 2, all prime numbers are odd numbers, and I take between 50 and 100 with no 2 in them. |

| Question No. 04 |
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| Ternary numbers are formed with a number system with base 3. Given the ternary number 10212, find its decimal value. |
| Answer No. 04 |
| 104 |

| Question No. 05 |
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| Build a sieve of Eratosthenes to determine if 19 is a prime number. Show the state of the table at each step. |
| Answer No. 05 |
| |  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |  |   Ans = 2,3,5,7,11,13,17,19. (19 is a prime number) |

| Question No. 06 |
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| Take two natural numbers X and Y. If X \* Y = Z, is Z even or odd when X and Y -  (Case 1) both are even: even / odd  (Case 2) both are odd: even / odd  (Case 3) One of them is odd, the other one is even: even / odd |
| Answer No. 06 |
| Case 1 = even  Case 2 = odd  Case 3 = even |

| Question No. 07 |
| --- |
| Find out all the divisors of 72 and 132 separately. What are the numbers that appear in both of the divisor lists?. |
| Answer No. 07 |
| The divisors of 72 are 1,2,3,4,6,8,9,12,18,24,36,72. (Number of divisor total 12)  The divisors of 132 are 1,2,3,4,6,11,12,22,33,66,132. (Number of divisor total 12)  Common divisor are 1,2,3,4,6,12. |